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Vol 5 No 20

CST rescues QL from the dead

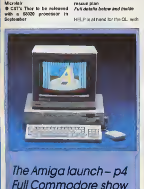
● A QL upgrade and a rescue plan launched at the ZX Microfair
● CST's Thor to be released with a 68020 processor in September
● Full specifications of the Thor and information on the rescue plan
Full details below and inside

HELP is at hand for the QL with at least one possibly two new machines scheduled for a September launch. The first of the machines, CST's Thor was previewed at Saturday's ZX Microfair. It is currently an upgrade of the original machine but CST plans a completely new 68020 processor machine for September.

The single prototype Thor which the company has at the moment was completed the day before the Microfair and is basically a repacked version of CST's QL add-ons fitted into a CPU box with a detachable keyboard. The latter's layout and design is actually that of IBM's AT business computer – streets ahead of the original QL keyboard.

The main system unit houses the QL circuit board, all other parts of the original machine having been thrown away, and additional circuitry from CST to

continued on page 4 ▶



The Amiga launch – p4
Full Commodore show report – p10

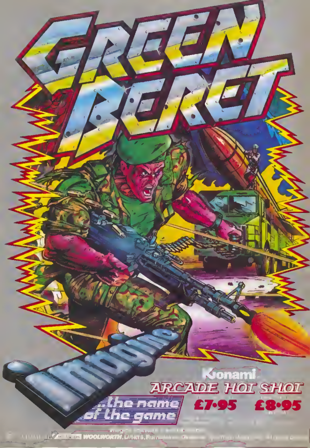
COLOUR FEATURE



Review – see p16

THIS WEEK'S NEWS

- *Amstrad plans 256k Spectrum?*
- *Redesign for Commodore 64 this year?*


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Contents

SPECIAL FEATURES

◀HARDWARE

SOFTWARE▶

GAMES▶

Reviews – see page 18

◀PROGRAMMING

REGULARS▶

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ABC

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Commodore reveals its UK Amiga prices

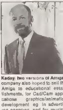
COMMODORE finally unveiled exact prices and packaging on the Amiga computer, at its official UK launch last week

Commodore UK's acting general manager Chris Kaday revealed "The Amiga will come in two versions, one at £1 475 plus VAT, the second at £1 675 plus VAT"

The lower priced package whose final retail price will be £1,696 25 comprises the computer with 512K Ram a 3½ inch disc drive, colour monitor mouse and start-up software packages The more expensive version (RRP – £1 926 25) also has a second external 3½ inch drive

The Amiga is expected to be available through specialist dealers from next month onwards Commodore is taking orders now

Kaday said that apart from general business outlets the company also hoped to sell the Amiga to educational establishments, for Cad/Cam applications graphics/animation development eg in advertising agencies and for musical and desk-top publishing projects Nor did he discount the (very rich) home user


Kaday two versions of Amiga

Additional products to be sold with the Amiga include the external disc drive as a separate package for £249 (ex-VAT £286 35 inclusive) and external 5¼ inch disc drive at £299 (£343 85 inclusive of VAT) and Sidecar a hardware IBM emulation package which contains an Amiga interface and 8088 processor, enabling IBM programs to be run on the Amiga at full speed

There is also a software IBM emulator Transformer which will be cheaper but not as compatible

Sidecar also boasts 256K Ram expandable to 512K three IBM compatible I/O expansion slots It plugs into the Amiga expansion bus

Kaday said Sidecar would be available in this country "before the end of the year"

For details of Amiga software and availability see this week's Commodore show report on page 10

CST saves the QL from the dead

◄ continued from page 1

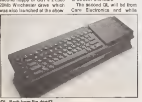
control four Rom slots, a mouse port and a parallel port The machine also has 640K Ram enhanced QDOS and space for two disc drives It will be sold with at least one 720K 3½ inch floppy drive, and the other slot will take either a second floppy or CST's £1,000 20Mb Winchester drive which was also launched at the show

The Thor will initially be sold as an upgrade although CST is trying to obtain stocks of QLs so that complete systems can be assembled No price has been fixed yet but as the components for the base system retail for around £600 it's likely to be over this mark

The second QL will be from Care Electronics and while CST intends to leap-frog straight to the full 32-bit 68020 processor Care hopes to sell a 68000-based machine with single disc drive for £499 According to Tony Tebby of Care this is the QL rescue plan and involves a new company being set up with funding from QL dealers He says if he can get a commitment from dealers to take 50 machines each in the first month it will be possible to raise the £250,000 needed He claims to be half-way to this total already

The machine itself he says will be fully QL compatible rather than being a QL mark two This means that the project can go ahead without the active co-operation of Amstrad

Amstrad's attitude to the two rescue plans isn't yet clear but as the company is thought to be preparing its own 68000 machine it may not be favourable


QL Back from the dead?

Software houses hold back on Spectrum 128

PROGRAM development for the 128K Spectrum has come to a virtual standstill, as companies unsure of the machine's future put their projects back

Firebird is continuing with the rewrite of *Elite* and has released an extended version of *Rasputin* but doesn't intend to produce any more specifically 128 titles until it becomes clear there's a reasonable market Alan Giles of Melbourne House revealed that the 128 version of *Rock 'n Wrestle* has been abandoned while development of the extended version of *Lord of the Rings* has been "put on hold"

Ocean two of whose games were bundled with the 128 as sold by Sinclair is also easing up on development although it still intends to bring out a number of products in the future

Hewson, which produced a version of *Technician Ted* for the 128's launch is according to Andrew Hewson adopting a wait and see attitude

It's therefore looking very much as if although 162 compatible 48K games will be available there will be little specifically 128 software on sale until at least Christmas

Amstrad plans 256K Spectrum?

THE new version of the Spectrum which Amstrad plans to bring out this autumn may now be rather different than at first thought

It now looks as though Amstrad will not only increase the memory of the Spectrum to 256K but also utilise Astron cards, credit-card style cartridges with their own port on the machine

These are currently produced in the UK by Electric Software which had been in negotiations with Sinclair over Astron cards for the Pandora portable project Pandora has apparently been dropped by Amstrad but the credit-card implementation has been transferred to the new Spectrum

It is thought Amstrad plans to bring the machine out at under £200, as a sophisticated games console

Memotech and Tatung to launch micros

TATUNG and Memotech are both launching machines against Amstrad in the next few months Tatung's follow up to the Einstein is to be launched towards the end of the Summer at a price which is "competitive with Amstrad" according to Tatung spokesman David Bell

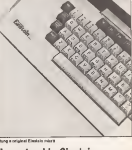
The new machine which is currently out with software developers has 3 inch disc drive 256K Ram, stereo sound output and can display up to 512 colours on screen at the same time It is, according to Bell, compatible with the previous Tatung machine and will run with Syntaxsoft's Spectrum emulator for the Tatung

The configuration of Memotech's new machine is less certain The company is currently in receivership, but is maintaining hardware and software helpline support The software helpline is being handled by Syntaxsoft whose boss Keith Hook, also runs Genpat, the Memotech user group, while a spokesman on the hardware support line told *Popular Computing Weekly* that Memotech was regrouping as a new company under Jeff Boyd one of the founders of the original company (see *Popular Computing Weekly*, March 27)

Neither Boyd nor Hook was available as PCW went to press, but as the latter has been a software adviser to Memotech for some time it seems likely that Syntaxsoft will be heavily involved in the new machine and that it will be Z80-based, this being Syntaxsoft's area of specialisation

Memotech and Tatung are both likely to be attracted by the Amstrad market as their machines are based on the same Z80 processor as Amstrad's micros, and the capabilities of the machines are similar

If the two companies can cash in on the revival of the CP/M operating system they stand some chance of creaming off some of Amstrad's small business sales



Tatung's original Einstein micro

Timex to ship Sinclair machines into Poland

THE CONFUSION over the ownership of the various constitutent parts of Sinclair Research has taken a turn for the worse, with the news that Timex has signed a deal to supply its Spectrum-derived Timex 2068 to Polish schools

It has further been suggested that Timex secured the eastern European rights to Sinclair products from Sinclair prior to the Amstrad takeover despite the fact that Alan Sugar claimed he had secured "worldwide rights" to Sinclair machines at that time

The Timex 2068 is a variant of the Spectrum first launched in the US but subsequently withdrawn It has since been sold in Portugal, where Timex retains rights to the machine Timex won't comment on the Polish deal but a statement is expected in the next few days

Commodore alters prices and plans a new look for the 64

SEVERAL changes have been made to pricing and packaging policy on Commodore's 8-bit range, reflecting to some extent the implications of the Amstrad/Sinclair deal for Commodore UK

While the Commodore 128 was intended at its launch to supersede the aging 64 model in time it now looks likely that Commodore is considering a relaunch of the 64 in the home market entertainment field

A redesign of the machine's casing to bring it more up to date and more in line with the low-slung keyboards and cream coloured units of the other machines in Commodore's range is also on the cards

A redesign of the 64 was first mooted at the PCW show last September, but the idea seemed to fade away as Commodore heavily promoted the 64 in the musical application field

However Chris Kaday of Commodore UK acknowledged that the Amstrad/Sinclair deal had given Amstrad a virtual monopoly of the current and future entertainment micro market in Britain, aside from Commodore, and that such a relaunch was a possibility

Some rethinking has also been done on the two 128 machines The direct 64 upgrade, the Commodore 128, is now available in a compendium pack, similar to that of the 64, for £269

The 128D, with a built-in $5\frac{1}{4}$ inch disc drive will now be available in three versions the cpu plus drive for £499 the cpu drive and monochrome monitor at £599 and the latter package, plus printer and *Microclerk* business software for £899

Kaday denied however, that this third package was intended to compete with Amstrad's PCW machines "We are aware of the significant penetration of the PCW's but this is different – we aim to provide a credible alternative

The 128D pack has a better quality printer It's a different machine, with different software at a different price "

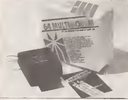
Amstrad denies disc shortages

AMSTRAD is set to circulate a letter to dealers saying that the reports of shortages of its 3 inch discs are "myths"

Amstrad's computers are virtually the only ones to use 3 inch discs and their scarcityhas been a problem for any Amstrad disc drive owner

Now Amstrad has asked its disc supplier Matsushita of Japan for written confirmation of the disc's availability which can be referred to the trade

Matsushita's letter, however, is expected to include the clause that it will continue to produce the 3 inch discs only as long as Amstrad requires them



Miracle Technology's Multimodem for the 64 gets BABT approval

Miracle Technology's 64 Multimodem for the Commodore 64 and 128 has now received BABT approval. The modem has its own software on ROM, provides CCITT V21/V23 and Bell standards and handles baud rates of 300/300, 1200/75 and 75/1200. It features auto-dial and auto-answer, and functions include save and print frame. It costs £116.15.

Details from Miracle Technology, St Peters Street, Ipswich IP1 1XB (0473 216141).

Ocean adds touch of Genius to Laser range

OCEAN'S utility software division, Ocean IQ, has released versions of its *Laser Genius* machine code system for Spectrum, Amstrad and Commodore 64/128. A Spectrum 128 version is to be released shortly.

Laser Genius is a development program written by Oasis Software, which produced *White Lightning* and Ocean IQ's range of compilers and assemblers. It consists of an editor assembler, monitor and analyser, the latter being a software emulation of some of the functions of hardware-based debugging devices.

The program costs £14.95 for tape, and £19.95 for Commodore and Amstrad disc.

Mastertronic to sell cheap C128 games

MASTERTRONIC is releasing a range of £4.99 disc-based games software for the Commodore 128. The first titles are both enhanced versions of earlier Mastertronic hits on the 64 – *The Last V8* and *Kick Start*.

The two are among the first specifically 128 titles to be released in this country, and the low price will make them particularly attractive to users. Mastertronic spokeswoman Alison Beasley promises more 128 titles in the near future.

Mastertronic has in the last few months proved that a market for minority machines such as the C16 and Plus 4 exists. The C128 market is therefore a logical extension to this.

Kuma launches utility pack for the Amiga

KUMA Computers has released *K-SEKA*, an Editor/Assembler/Debugger for the Amiga. The product is a fast, efficient 68000 assembly code system which includes an Editor, Disassembler, Linker and Machine Code Monitor and operates under Amiga DOS.

K-SEKA is currently available at a retail price of £79.95.

Details from Kuma Computers, 12 Horseshoe Park, Pangbourne, Berks (07357 4335).

Letters

Star Letter

Capsclock queries

I've had several queries about using my 'Quill Capsclock' program which gives an on-screen caps lock and clock with *Abacus Easel* and *Archive*. The clock-setting routine can be merged with boot programs in the same way as for *Quill*, but line 8 must be changed to contain the appropriate filename.

You'll also have to produce a modified version of Capsclock with altered window positions using the table printed in Vol 5 No 17. The new window coordinates are for the caps lock indicator – 274 236, for the clock – 340 236.

There is an easier way to do this than using the table. The Microdrive cartridge I'm supplying for £4 has a version of Capsclock already which modified for use with *Abacus* and *Easel* and a program which makes it easy to change Capsclock to suit whatever *Archive* screen you're using.

If you're still stuck with version 1 of *Quill* the published clock setting routine won't work. You can get Capsclock running by inserting an *Exec* command between the *LBytes* and *Call* commands in line 200 but it may affect the screen stability.

Anyway your time would be better spent getting hold of a version 2 copy of *Quill*.

David Witherow
St Leonards
East Kilbride

8256 sex symbols

Locoscript seems to have attracted equal amounts of admiration and criticism from its many users. On the face of it one of its limitations seems to be that you cannot create user-defined symbols or even type certain accented letters if they are not part of the standard character set.

Being a professional biologist I needed to use male (♂) and female (♀) signs when writing scientific papers. After an hour or two of experimenting it seemed fairly obvious that the male sign could be constructed from an 'upward arrow' printed in superscript on top of a zero in subscript. The arrow had to be printed in italic to get the necessary slope to the right. Similarly a female sign could be made from superscript zero and subscript plus.

The difficulty came in trying to superimpose the two halves of each character as there is no backspace key on the Amstrad, only a back delete key. Also you cannot send a backspace control to the printer from within *Locoscript*.

The answer is to print the values of the special symbol on separate lines with zero line space between them!

When I tried this for the first time it seemed so complicated and time-consuming that I nearly abandoned the whole idea. At this point my overworked brain managed to come up with the solution that saved the day. All I had to do was save the sequence of commands for each symbol as a 'phrase'. These phrases are stored in the Phrases.Std file and now I could type my male sign using Paste M and the female sign with Paste F.

Well of course things are not that simple. You have to line them up in the same column by eye, which can only be done with codes switched off using f1. You simply type a series of blank spaces in front of the second part of the symbol until it lies directly under the first part.

The effect on the screen is decidedly odd because altering the line space only changes the printer output, not the screen display. However the printed result is very satisfactory.

One warning I have to pass on is that the process will not work in proportional spacing but only with one of the fixed spacings. Although the columns line up on the screen in proportional spacing they will not necessarily do so on the printer.

The basic principle of using zero line feed to superimpose characters opens the door to the production of many new symbols on *Locoscript*. Several promising signs are accessible using Alt and Extra and combinations of these are sure to lead to interesting results.

Peter Bernard
Leigh-on-Sea
Essex

Mr Barnard receives a year's supply of *Popular* binders

Tiger? No way!

A word of warning for anyone considering buying Gremlin Graphics' *The Way of the Tiger*. Don't!

I was foolhardy enough to splash out ten shiny pound coins on this much-acclaimed game. After all it was not only a *Crash* Smash but a *Your Sinclair* Megagame.

Very pretty graphics, great animation of your ninja and flowers blowing in the wind, ducks swimming, fish leaping and other strange stuff. Next day I sat down to play it from the beginning.

I breezed through all three parts in no time.

The first part is dead easy – just repeated blows and backward leaps polish off your opponents. In the second part repeated jabs of the pole make

continued over the page

Puzzle

Puzzle No 208

At Cynthia's party we played Buzz Fizz. If you don't know the game let me explain. A group of players sit in a circle. The first player calls out "One", the next player calls "Two", and so on, each player counting up in turn. When play returns to the first player he continues in sequence, and so the game goes on.

However, for any number which is either a multiple of five or contains a five as one of its digits the player calls out "Buzz" in place of the number. Similarly numbers which are a multiple of seven or which contain that digit are replaced by the word "Fizz". Players with numbers such as 35, 56 or 57 which exhibit *both* of these properties call out both.

Any player making a mistake drops out of the game, which continues until only one player is left, eg, a sequence starting at 24 would run "twenty-four", "Buzz", "twenty-six", "Fizz", "Fizz", "twenty-nine", "Buzz" ... and so on.

Anyway at this party we must have been very good at the game as we had counted to well over one hundred before Cynthia had to drop out of the game. This was not because she had made a mistake – in fact, up until then everyone had had a perfect score – but because she had lost a contact lens and had to look for it!

At the time that this happened there had been an equal number of both "Fizzes" and "Buzzes" called. What was the earliest count on which this could have occurred?

Solution to Puzzle 205

The wall has a height of 256 inches (21 ft 4") and the windows are 30 inches wide.

There are two variables to be taken into account, the width of the wall (an exact number of inches) and the width of the windows (also an exact number of inches over 12). These values are generated in two *For/Next* loops in the program. The width of the window ranges from 12 to one third of the width of the wall. This is because three windows placed side by side cannot be more than this. For each set of values the various areas are calculated and the total area of brick remaining is compared with the total window area; if it is seven times the window area the result is printed out.

```
[illegible]
```

Not that the wall area includes the pointed area at the top (which will be equal to the square of half the width of the wall) but will exclude the area of the windows and the area of the door. The windows themselves occupy an area equal to 11 times the width of one window squared.

Winner of Puzzle No 203

The winner is Al G[illegible]nbey of Berlin, West Germany, who will be receiving £10.

Rules

The closing date for puzzle 208 is June 10.

continued from page 7

your opponents fall into the water" and in the third part repeated slashing for the first two and slash-dodge for the second two (including the grand master) got me through easily

"Well done" it says. I then expected to go back to the start with more harder opponents to beat. But no – that as they is your lot

Infuriated is not the word for it. I have just spent £10 on a game which I'll probably never want to play again as I can whizz through it in no time

I'm not an ace games player so if your readers want a game that will keep them occupied for a long time they shouldn't buy *The Way of the Tiger*

The Doppel-ganger
Barnsley
Yorkshire

What's a Crash Smash?

Amstrad disc blues

I'm an Amstrad 464 owner who in my innocence recently bought a 3" disc drive thinking to put my large but original software collection on to it

I now find that because of illegal filenames headerless loaders and that nasty turbo that this was a pipe dream

I can get some on to disc but not all will run, and of those that run not all do so properly. This does not endear me to our 'struggling' software firms

I now no longer purchase any software unless I can be assured that it will transfer, and I can see no point in buying disc software unless it uses all of the disc. After all I can't see anybody putting a five minute program on a C60 cassette – can you?

The practice of producing anti-disc software will not damage the tape pirates but merely produce a new enemy out of the needs of the disc user. Roll on the Amstrad Interface 3

T Meredith
BFPO 20

Most software companies will upgrade cassette software to disc for a small fee. In any event, it's not as though you can no longer use your cassette-based programs

'We've waited so long it's become a legend before its own lifetime'

String driven thing

I read Martin Lenni's letter to *Peek & Poke* (Vol 5 No 18). Your resident expert's answer was fair enough but

I had the same type of problem a while ago and it transpired that I was not making allowances for the machine's inability to send a null string. The message I got was the same 'String Too Long'

I now translate null strings to another character (something like the hash symbol) when sending and back again on receiving. I have also noticed that the Commodore 64 is particular about the secondary address on file numbers

Richard Hardaker
Cobham
Surrey

A fair point – one of the reasons why professional software uses default settings to such a great extent is to avoid this kind of problem. Instead of doing the translating at the input/output stages, you can predefine all strings to a default character and simply overwrite them as necessary

Every week *Popular Computing Weekly* offers prizes for Star letters. The most interesting item in our postbag each week will win the writer a free year's supply of exclusive *Popular Computing Weekly* binders.

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DO YOU WANT TO BE A HERO?
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Amiga stars at Commodore show

Christina Erskine tours the show where the Amiga was finally let loose, and finds that Commodore's 8-bit machines have not been forgotten

The Amiga its launch its continuous demonstrations courtesy of Commodore and its price entirely dominated the Seventh Official Commodore Computer show held at London s Novotel from May 9-11

The fact that Commodore publicly showed the Amiga for the first time in the UK at the *Which Computer?* show in January has apparently now been forgotten ('That was a preview' say Commodore executives) and the show last week was being treated as its official launch

This is curious The Commodore show has in recent years been attended by entertainment companies and the general public largely because Commodore s best-selling machines have been aimed in this region too I suspect that many of the large crowds surrounding the Amiga demonstrations could only goggle and consider their Barclaycard credit limits ruefully

For the Amiga its graphics/art sound and speech abilities notwithstanding is being directed first and foremost at the business user, be it a purely desk-top user ad agency or graphic design house user Home users, in all honesty will either have to wait for price cuts (which could take some time), or Amiga clones from other companies

But I may be wrong Certainly the Amiga attracted huge interest at the show Commodore ran continuous demos on its own stand, which congested the upper floor more than somewhat and also in the Commodore Theatre on the ground floor It is also important to look at what the Amiga can do and what the third party software companies intend to put on it because the capabilities of Amiga encapsulate the way that the home computer market is moving Every hardware company would like to be able to produce a machine with the Amiga s features at a price everyone can afford and it won t be that long before one of them does it

The Amiga

For a few lucky people an Amiga could be theirs within a couple of weeks Commodore was taking orders at the show and an initial shipment of 1 000 machines is in Britain now More should be arriving next month and Commodore is blaming a dock strike for any delays that occur

Anyway plenty of Amigas were in evidence at the show on a number of stands – what of the software to run on them?

The Amiga village took up much of the upper floor and housed twelve companies showing their wares Its graphics features were being shown off to good effect by Ariolasoft which demonstrated its *Deluxe Paint Deluxe Video* and *Deluxe Print* packages licensed from US company Electronic Arts *Deluxe Paint* is the sort of art creation program which makes any other look rather ill for its sheer speed flexibility and features available *Deluxe Video* enables you to create animated graphic sequences with sound effects and sub-titles all from a series of not over-complicated menus while *Print* is a rather jolly little program which will make Christmas cards calendars personalised notepaper etc

The Amiga – star of the show

On a more business-like note Eidersoft s Amiga village stand showed an integrated accounting package, inclusive of nominal ledger, cash book budget control, sales orders, sales analysis purchase orders, sales ledger purchase, ledger inventory control applications to name but some Interlex introduced *The Office System*, comprising six modules each at £48 95 *Office* (environmental manager), *Office Word* (simple word processor) *Office Chat* (electronic mail) *Office Data* (database) *Office Monitor* (analysis of *Data*) *Office Net* (networking)

Precision has also joined the exclusive band working on Amiga titles it was showing a variety of titles, including *Aegis Images Aegis Impact*, and *Aegis Animator* (paint, slide presentation and animation packages) *Logistix* (a spreadsheet database and business graphics compilation) Precision was also displaying hardware for the Amiga and was one of the few stands to do so Its range included a seven slot expansion box system and expandable Ram board with 2M memory, and a stereo sound digitiser

Precision also had an ink-jet printer on display the Canon PJ-1080A, compatible with the Amiga 64 and 128 and quite reasonbly priced at £299

Other hardware on show for the Amiga included another 2M Ram expansion the AX2000, from Canadian company Comspec Communications Plus of course Commodore s own external drives, the additional 3½ inch and 5¼ inch version

On the languages side Metacomco announced its Pascal had earned an ISO certificate from the BSI thus endorsing it as a full standard Pascal implementation Micro APL introduced its APL.68000 for the machine

Not all was deadly serious on the Amiga In the village Enigma Developments demonstrated *Trivia Trove* a series of strategic puzzles – the sort you need to be able to solve in three seconds flat to get into Mensa Enigma evidently thinks the Amiga is a no-holds-barred home micro a game

Windows and multi-tasking on the Amiga

for the whole family ', it insists in its press hand-out.

Elsewhere, Mirrorsoft was proudly displaying its astronomy program. *The Halley Project* licensed from Mindscape in the States, while the Amiga verison of that much-publicised venetian blind simulation, *The Pawn* was demonstrated on the ground floor.

The Amiga village certainly showed that the Amiga will not be completely starved of software however, space around the village stands was so limited, it was a lucky person who managed to get close enough to see the goods on display

Commodore 64/128 – serious software

The 64/128 computers were not forgotten in all the attention being devoted to the Amiga. There was plenty of serious stuff about, notably from Viza Software Gemini Marketing and Supersoft.

Viza showed its word processor, *Vizawrite Classic* for the C128 which includes a 30,000 word spell checker, plus its spreadsheet/database/business graphics package *Vizastar* – all integrated. Gemini showed *Office Mate* (word processor database, accounts and mailing list) and *Office Master* (the same, plus further accounts modules)

Supersoft, which has been producing Commodore software since before most of us can remember had a whole new range for the 64 and 128 including a Z80 cross assembler, Turbo disc and advanced machine code monitor (128 only)

Microclerk the business package bundled with the "business system version" of the 128D (see news story) was being shown as a stand-alone product on JCL s stand. *Microclerk* comprises accounts designed for the small business user word processor with mail merge filing calculator program and costs £99 99 in its stand-alone configuration

Also on the non-games area but more leisure orientated, Wigmore House showed its acclaimed Wigmore mouse package and software Trojan displayed *Cadmaster* to be used with its light pen while for communications enthusiasts rivals Micronet and Compunet fought it out on near-adjacent stands on the upper floor

An interesting slant in the communications area was the appearance of British Rail, which took a stand to exhibit how you can book and buy rail tickets through Prestel and credit cards. The British Rail representative explained that appearing at shows was a new policy, but that it hopes to make its presence felt at a number of micro exhibitions this year

Music

The heavy promotion of the Commodore 64 in this area has led to a variety of products being introduced to take advantage of the yet-to-be-surpassed-for-the-price Sid chip

Most conspicuous was Music Sales, showing its full Commodore UK-endorsed range the Music Maker, Sound Studio and the new Sound Expander (see *Popular Computing Weekly* February 13 for a review). These products are available in one complete package for £149 99 Music Sales Sound Sampler (£69 99) was also being shown

Third party musical offerings came from Supersoft, with a C64 drum machine cartridge and software called *Rhythm King* (£39 95) and *Microvox*, a digital sound sampler (£299 95 cartridge plus hardware), which has features such as harmonising, phasing and flanging

Games

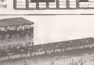
Most of the show faithful were there Anco (Anirog), Level 9 Mirrorsoft Llamasoft and Bubble Bus C16 owners could find plenty of software on the Anco (*Winter Events* in particular) Typesoft Martech showed *Zoids* and *Samatha Fox Strip Poker* on the 64 Level 9 displayed *The Price of Magik* (see elsewhere in this issue) Mirrorsoft showed *Biggles – the Computer Game* for the first time in public while Jeff Minter s Llamasoft was mainly concerned with Batalyx and other recent 64 releases

Robtek showed its much sought after *Game Killer*, and was offering special show prices on that and *Turbo* for the 64

There were plenty of bargains to be had for anyone looking to expand their C16/C64 catalogue as a number of wholesalers/retail outlets exhibited at the show

Above *Aegis Images* (Amiga), below: *Vizastar* (128), bottom. Music Sales complete system (64/128)





A flawless performance

Peter Worlock looks at the latest dot-matrix printer from Centronics

Anyone looking for a general purpose printer is faced with a bewildering range to choose from. Extending the range even further is a new printer from Japanese manufacturer Centronics being marketed here by Saga Systems.

The GLP II is a dot-matrix model using a nine-pin print head which means it features true descenders and the ability to print good quality graphics and screen dumps.

What makes the GLP II stand out in the crowd is that it comes with both Centronics parallel and RS-232 serial interfaces built in, selectable from one of the two banks of DIP switches.

The printer has a host of facilities, including selectable baud rates for data transmission speeds, the ability to emulate either an Epson or IBM standard printer, eight international character sets, plus a three-way print buffer.

In either Epson or IBM mode, the GLP II has a 2K data buffer and a 1.8K print buffer holding the data for a full line of print. However, in Epson mode, a third 'download', buffer is available. This allows you to send user-defined characters to the printer – ideal for Commodore owners, or those who want to print unusual characters such as scientific or mathematical symbols.

THIS IS DRAFT MODE

THIS IS CONDENSED MODE

THIS IS EMPHASISED MODE

THIS IS ENLARGED MODE



In addition to the usual print modes found on dot-matrix printers – condensed, enlarged, emphasised, sub- and superscript, etc – the GLP II features a near-letter quality mode (NLQ).

NLQ is printed using a 12-pin matrix at 10 characters per inch.

Some of the print features are not usable in this form, but you can use NLQ together with underlined, enlarged and sub- and superscript.

All of these features are controlled through software by using Epson standard ESCape codes. I would have preferred, however, a hardware setting for NLQ mode.

Construction

On the whole, the GLP II is solid and well-built. It is very small – only 13 × 7.5 × 2.5 inches – but fairly heavy. This makes it ideal where desktop space is at a premium.

The print head looks a little flimsy, but during this test it performed flawlessly and Centronics claims a life of 50 million characters minimum.

The basic model comes with friction feed only, although tractor feed is an optional extra and the paper path is such that paper can be positioned to start printing at the top of the first sheet, which saves a lot of paper.

The DIP switches are reasonably accessible in a trench under the print head, a lot better than the Epson method which requires dismantling the whole printer to get at them.

Print speed is fair with a claimed 100cps in draft mode, and 25cps in NLQ mode. In reality no printer reaches these quoted speeds and the GLP II is no exception. But NLQ speeds are still faster than the average daisywheel.

This is Near Letter Quality (NLQ) mode.
The printed characters are larger and better-formed.
Note that you can also incorporate <u>underlined</u> and **bold typefaces** in NLQ mode.

Conclusion

The GLP II has a lot to commend it as a general purpose printer for home computer users. It's small, well-built and more than adequate for screen dumps and listings, while the NLQ mode is fine for letters and essays.

Business users would be better advised to look elsewhere, perhaps to the Epson LQ series or similar. For the rest of us, the GLP II is well worth a look and at £199 is very fairly priced.

Hardware Centronics GLP II **Price** £199 **Supplier** Saga Systems, 2 Eve Road, Woking, Surrey GU2 4JT. Tel: 04862 22977

Arnor terminates text file turmoil

I may seem biased but there are few Amstrad utilities that I have looked forward to as much as this extension to the excellent *Protext* word processor. The principal use of *Promerge* is to provide mail merge facilities, but Arnor has also taken the opportunity to improve the features offered for basic word processing

CPC owners have been a bit spoilt to date since both *Tasword* and *Newword*, for example, have offered quite advanced conditional mail merge printing as standard (This means that the text of the merge letter can be altered depending on the contents of the data supplied, for example, if phone number data is present then print the block beginning 'Please ring ', etc)

Although it follows on the heels of both of these hopefully *Promerge* will open up a new market of small business users for Arnor, especially since it always tries to go a bit further than the competition First, *Promerge* is much more flexible than either of the above when it comes to reading data – it is likely that almost any program you own will able to send data in a form that can be understood

Reformatting of the text is automatic at printing which *Tasword* doesn't do, and there are some extra facilities – for example you can test substrings of data and even remove part of the data at printing 'Mr A Smith' can be printed as "Dear Mr Smith

Extensions to the word processor include many more embedded commands that can be placed into the text to ensure that chores such as setting up the printer drive can be completely automatic Those with Epson compatible printers can now use microspace printing (variable text size and proportional spacing) and can now both edit and print text in a choice of six foreign languages (the special characters appear both on screen and on the page)

Files can now be printed or viewed from disc without replacing the one in memory There is also a typewriter mode for direct printing (useful for envelopes)

Finally *Protext* options can now be set from Basic so you can create a loader program on disc that configures the program exactly the way you want when it runs

The disc and Rom versions are not identical *Promerge Plus* on Rom offers even more than the disc and also overcomes the restrictions on text size caused by loading both *Protext* and *Promerge* into Ram Extra features include the ability to have two files in memory at once, Background printing of one file while another is being edited is also possible

You can now move or copy blocks of text as defined 'boxes' or rectangles on screen (invaluable for tables of data or two column printing) There is a decimal calculator that can insert values into the text Finally *Protext* can now automatically convert Ascii text files back to its own document type (replacing hard carriage returns with soft ones, etc) rather than just vice versa – feature that is enormously useful and, as far as I know, unique

CPC 6128 (or DKTronics Ram pack) owners can make use of the second memory bank such that the maximum text size is now 80K in two separate halves (blocks can be switched between them) which is about the same as the largest file that can be edited on a CF2 disc by *Newword/Wordstar* etc

It must be said that to buy *Protext/Promerge/Prospell* on Rom which is essential to get the full advantage of power and memory space will cost you a good £100 plus, but together with a 6128 and a decent printer you will have a set-up that can thrash any 8-bit word processor for speed and even cross swords with some 16-bit programs for power If only it ran on the PCW as well, but then since this is the last of their advertised releases who knows what Arnor will be up to next?

Tony Kendle

Program *Promerge Plus* **Price** £24 95 disc, £34 95 Rom **Micro** Amstrad CPC range **Supplier** Arnor Ltd, The Studio, Ledbury Place, Croydon CR0 1ET

Disc dilemmas divided

There are a series of extremely clever and extraordinarily useful disc indexing programs ideal for those people who have recycled their 3 inch discs so often that the disc label is covered in scribble, or for those who have a tendency to save everything as *Letter1 Letter2* etc

Findex is a utility that allows you to name each of your discs very simply A B C etc You can run your amended discs through *Findex* and it makes a complete index file of each record, its size, location user number, etc It is possible to selectively specify which files to include by the use of wildcards which are very more flexible

Two related programs are also provided *FileAnalysis* will study the index and recommend the optimum arrangement of files on your disc to cut down on wasted space. *FileManager* will allow you to mark certain files or filetypes in the index as condemned Once this is done the files will be erased the next time you index the disc even if they are set to *Read Only!*

Keywords is a utility that complements *Findex* and can be run from within it It will simply search through and index every file on your discs that contain a certain keyword or combination

Doubledot works best on word processor files and allows you to emulate one of the nicer features of *Locoscript*. It will allow you to enter up to ten lines of comments at the beginning of any text file, using typical *Wordstar* conventions to mark these comments although you can choose your own The program will then work through the specified filetypes filing, displaying or printing these comments

Tony Kendle

Program *Disc & title utilities* **Micro** All Amstrad **Price** £49 95 **Supplier** Newstar Software 200 North Service Road, Brentwood

PCW Pascal upgraded

Hisoft Pascal is the third implementation of the language available for Amstrad owners and for would-be programmers on a budget. It's the cheapest

This new implementation also includes support for the GSX graphics system, which further reduces what little differences there were between the various packages

Hisoft's version will run on either the 8256 or 6128 (or other CPC machines with expanded memory and disc) What you get is a text editor, compiler a small libery of routines and a handful of demonstration programs including a turtle graphics interpreter

Documentation is adequate as a reference guide but is not designed as a tutorial, so beginners at Pascal will need to buy one of the many standard introductions to the language

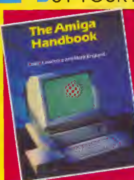
The major feature is now the GSX support and this is comprehensive The drawing of lines and polygons block fills, and colour (on the CPCs) is supported making graphs and business displays easy to produce

Digital Research's *Pascal/MT+* is a natural choice for computing students facing academic constraints, while Borland's Turbo *Pascal* is fast, fun and probably the one for real language buffs However, if you want to sample Pascal, or you don't have much money to spare, Hisoft's version has a lot going for it

Peter Worlock

Program *Pascal 180* **Micro** Amstrad 8256/6128 **Price** £39 95 **Supplier** Hisoft 180 High Street North Dunstable LU6 1AT.

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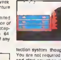
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Magikal mystery tour

Christina Erskine gets embroiled in the quest to destroy Myglar in Level 9's latest, The Price of Magik

After *Terrors of Trantoss* last week we continue on the adventure theme with Level 9 s latest

Any new Level 9 title is eagerly awaited by its legion of followers and the *Price of Magik* sequel to *Red Moon* is no exception Now out on the Commodore 64 conversions are in hand for just about any machine you can think of



The Price of Magik is a traditional style adventure – lots of spells to learn and use successfully a wealth of locations to be explored – points earned for reaching the more out of the way ones – and all the usual baddies, werewolves wraiths an ancient sorcerer who has abused his power and some not so-usual ones

The plot

Your aim is to find learn and implement 18 spells and use the magical powers you learn throughout the game to defeat Myglar ex-noble guardian of the red moon crystal turned bad, and now concentrating all the red moon crystal s powers to prolonging his own mortality

Once you ve done all your spell-finding, then of course you have to hunt down Myglar himself

Gameplay

The game uses the dreaded Lenslok protection system though it uses it sensibly You are not required to get the plastic out and start squinting straightaway Lenslok is restoring parts of the game you have saved on tape so you can get quite a bit of gameplay in before running the gauntlet.

The instruction leaflet makes grand claims about the parser – 'a wider range of English sentences than any other cassette-based game I ve seen Maybe so but don t expect it to be completely bug-free

Most of the anomalies appear when you type in a command, using a word not in the parser s vocabulary, and for some reason it decides you mean another quite different word This does not really detract from the gameplay, what is annoying (as always) is being told I can t see it , when the damn object has just been described in the blurb

The graphics are in true Level 9 style – somewhat crude but recognisable illustrations with some most peculiar colour combinations In *The Price of Magik*, they re drawn very quickly and big plus if you move out of a location before its picture has finished drawing itself it ll move on straightaway – no hanging around waiting for colour fills To speed things up even more the formation of pictures and text-printing is done simultaneously

You begin standing outside a tumble-down house where much of the action takes place alternatives are to explore the garden march in through the front door or climb to the roof up a vine Best policy is to have a quick look round the garden collecting everything in sight, and then up the vine Go through the door at first and you re liable to encounter all sorts of malevolent creatures before you can obtain any weapons or armour

A map need I say it is essential The parser allows you to type a series of location moves in one go so knowing



exactly how to get to a chosen location is a must. Some locations need to be revisited several times, so you want to find the quickest route.

A wonderful addition to the parser is the *Oops* command (not available on every single version), which works as a take-back move, and can be used at any time. It can get you out of situations which look fatal, and will put you back in the location immediately before.

The 'price' referred to in the title, is your state of mind. The early stages of the game revolve around becoming insane enough to implement the magic you acquire. Every time you get the message *Your sanity is shaken*, it's good news. Every time you learn and implement spells you move up the ranks – you start off as a sorcerer's apprentice, through conjuror, soothsayer, shaman, spellbinder, magician, wizard up to supreme wizard.

Tips on playing

● Can't see in the dark? The eyebright needs to be rubbed into your eyes.

● The spells – there are 18 in all that you need – are the three letter "words" found, mainly inscribed around the place. Each one needs a "focus", before you can use it. The focus is an object you must be carrying, linked in some way to the spell and its action, eg, the "see" spell requires you to have a feldspar lens.

● If you can catch the blood-sucking bat – in a cage, perhaps, and drag it around with you, it'll come in handy when you come across the bloodworm.

● Slugs don't like salt.

● The *Oops* command comes in particularly useful when confronted with the chests – ten different coloured ones. Only one is of any use to you, the rest are positively dangerous, and the colour of the useful one is randomly generated each time you play. Properly speaking, one of the spells is implemented here, but I'm assuming you find the chests before you discover the intricacies of that particular spell.

● A suit of armour is a must – and if you're going to get one, you'll need to collect and carry a lot of bones!

● More armour can be acquired from something wearing it already – but make sure you don't leave it running around naked!

● Many of the baddies you come across can be ignored – simply get out of the room. Some, of course, will be in key locations, and can't be avoided. Others aren't as vicious as they seem. You will be protected from the werewolf, for instance, if you explored the herb garden properly, and the monkey, despite the fact that it snarls and bares its claws at you at every opportunity, is actually very useful to have around.

● The pictures which you come across in many locations may seem merely decorative, but once you have found the "bom" spell, they'll be much more useful.

● If you type in *Score*, you'll be given a rating for sanity, status and age. Your are increases with every spell you use, and once it reaches 100, you're presumed dead. To keep young, find the red moon crystal.

● In combat, you'll be given stamina points – and once that reaches zero, you're also dead. To keep your strength up, the tapestry will be essential, once you've discovered the spell to galvanise it.

● If you find an apparently useful object sticking out of the ceiling but can find no way of reaching it (jumping, standing on books and peering at it through a feldspar lens being no use at all – nor is it any good hunting for a ladder), then logically speaking, it should also be sticking out of the floor immediately above, shouldn't it?

● Reading the plaque in the river is a fiendishly complicated business. Basically you need the silver mail, and you must do something sensible with all your possessions before diving headlong into the river.

***The Price of Magik* is available for the Commodore 64 now, and shortly also for the Amstrad CPC series, Spectrum 48 and 128, Atari XL/XE, BBC (no graphics) and MSX. Tape versions cost £11.95. Level 9 can be contacted at PO Box 39, Weston-super-Mare, and will supply comprehensive cheat sheets to game owners on request.**

The Price of Magik

Level 9 Computing

Bombo baulks at budget

As if to prove once again that budget titles can be as good as the real thing, *Bombo* stands up very well to the "authorised" version of *Bombjack* Here – wait a minute - *Bombo* is £7 95! And I was just about to praise it unreservedly

It just goes to show that the fine line between budget and full price software has now practically disappeared Although *Bombo* is similar in many ways to the original game – with detailed backgrounds a jet-packing hero and a number of bomb to collect despite many enemies it doesn't justify the full price tag For a start there are only three backgrounds, Mediaeval Britain, New York and Ancient Egypt. Secondly, the much-touted music by WeMUSIC turns out to sound like Rob Hubbard on a bad day, and thirdly there's an annoying flickering line towards the top of the screen which speaks of hurried programming

That apart, the game plays pretty well – the flying eyes, birds, drones, hives and revolvers may not appear particularly menacing, but they get faster and trickier as the levels progress

However the layout of the 20 bombs which you have to collect on each level is fairly straightforward until you have progressed to a high stage of the game, so it's not too difficult As I said – *Bombo* would have been an excellent budget game, but doesn't have much to offer at £7 95

Chris Jenkins

Program *Bombo* **Micro** Commodore 64 **Price** £7 95 **Supplier** Rino, 1 Orange Street, Sheffield S1 4DW

Big cave – big joke

You are standing by a small stone hut a river runs to the south (sounds familiar?), well it should do, because this latest release from CRL is based on the original Crowther and Woods *Adventure* But do not be misled into thinking this is another clone far from it, for this is the 'original' version found by a St Brides pupil innocently hacking into a computer system owned by the American Government.

You realise this version is going to be totally different when, on entering the hut, you see a pair of smelly wellies strange (but logical) you may think, but clearly not the same

St Brides have done to *Adventure* what Fergus McNeill did to *Lord of the Rings* and in doing so have produced a wonderful, highly amusing game

One witty part which rather pleased me was, when I waved the Black Rod, instead of a Crystal Bridge appearing, Tony Bridge appeared, uttering words of wisdom like, "See 16, 32" All your old favourites are here such as, the evil dwarf, this time with ginger hair, glasses and a beard but, instead of throwing an axe, he throws a sharpened ZX81 at you Killing the python is done in a rather unusual way as well what you need to do is ! No, I think I'll let you work that out

The game comes in two parts, part two loads in after you have completed side one, also featured is a quick *Save* to Ram, something all games should have, and rather nice graphics

So what are you waiting for? Pop down to your local store and buy a copy then rush home and enjoy all the fun of this terrific spoof

Roger Garrett

Program *The Very Big Cave Adventure* **Micro** Commodore 64 **Price** £8 95 **Supplier** CRL, 9 Kings Yard Carpenters Rd Stratford London E15.

The heart of the Empire

The problem with *Empire!* is that it is not what it seems to be it isn't anything like *Elite* except that it involves trading in space It isn't only, or even primarily, a galactic shoot 'em up either This has led some people to be disappointed at what it isn't rather than celebrating what it is

What it is, is a vast (estimated three months playing time) space strategy game where blasting aliens sits alongside special missions deciding objectives defending systems and trading your ultimate objective being to clear the universe of aliens by gradually securing more bases

The first screens of *Empire!* (apart from the excellent loading screen) are not overwhelmingly impressive – mostly the in-space fighting and travelling sections to the game look little better than asteroids That's really not the point though, since they are only a small part of it. There are planets to land on, starbases to dock with, starmaps, hyperspace and all kinds of experience to be had. The screen displays vary from some rather nice 3D 'forward views' as you zoom across the planet surface to the top-down presentation of flying through space

Empire! is an enormously complicated game which will hook you if you give it a chance and start to become involved in the complex strategical elements It isn't *Elite* it isn't even graphically state of the art, but give it a go, anyway

Graham Taylor

Program *Empire!* **Price** £9 95 **Micro** Spectrum **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2H 9DL

Hibernating hedgehog

'Ello – Spiny Norman ere – cousin of Spiky Arold who s just got imself into a computer game Imagine – another blow for hedge og power! And no you don t ave to run 'im over in your artic!

Wantin' to see whether 'e'd let down the family name in this new low price Silver Range game I loaded it into my Spectrum and off we went *Spiky Harold Goes Hibernating* says the loading screen Oh good, thinks I – something nice and peaceful where you try to keep a little hedgie asleep. Roll over, Mrs Tiggywinkle!

But not a bit of it! Instead it's all about obtaining food from 54 chambers before you can put your feet up for the winter Blow me if it ain't nothing more than *Jet Set Hedgehog!*

What separates it from the run of the mill jump and collect games is its scale At least they ve done old Fatty 'Arold's girth justice – he's a big sprite

Owever, that's introduced problems of its own There s a little graphics flicker which I can stand because the scenery's lovely and sluggish controls – which I can t I suppose it may be momentum but it's very tricky to make Arold stop on a sixpence, and when you re talking about pixel accuracy that s not good

Sorry, 'Arold but blow your royalties – I can only recommend this to hedgehog fanciers!

John Minson

Program *Spiky Harold* **Micro** Spectrum 48K **Price** £1 99 **Supplier** Firebird, Wellington House, Upper St Martin's Lane, London WC2H 9DL

That sinking feeling

The latest adventure releases from Firebird is also the sequel to their earlier success *Subsunk*. Once again you find yourself in an underwater situation the first thing you discover is a dead body, searching the body reveals a passcard, which, when inserted into the appropriate slots, enables you to explore the seabase

Not a very original plot namely to find and stop a missile being fired towards Britain but it is enhanced by the friendliness of the program For example, on examining a conveyor belt we are told 'you see nothing of interest but you can climb it'' Nothing tantamount to a revelation but every little thing helps in an adventure The program allows you to wander about the many locations at will which is very nice if, like me you like to get some idea of what you need to do before starting to piece the whole thing together

The graphics are sharp and colourful, one of a shark, circling outside the observation bubble, was particularly impressive The problems are not over difficult and, as in *Subsunk*, not very logical.

Text descriptions leave a lot to be desired and I feel the overall atmosphere could have been made more stimulating by more lengthy wording, nevertheless overall the game is quite enjoyable and should keep you occupied for some considerable time

Roger Garrett

Program *Seabase Delta* **Micro** CBM64 **Price** £1 99 **Supplier** Firebird Wellington House, Upper St Martin's Lane, London WC2

In a spin over Spindizzy

If you ve been stunned by *Spindizzy* on the Amstrad or the Spectrum you'll go wild over the Commodore 64 version For those of you who have not yet caught the bug, *Spindizzy* is a marvellous development of the ideas behind the arcade game *Marble Madness* in which you steer an object with full inertial control over a bizarre landscape

In *Spindizzy*, the object is Gerald – a spinning inverted pyramid (which can also take the shape of a gyroscope or a sphere if you are that way inclined)

Gerald – is a mapping robot which you must use to fully explore a strange artificial world in another dimension The backgrounds through which Gerald spins are beautifully detailed including planes, ramps, dips, jumps, trampolines, towers and causeways Guiding Gerald is no easy task and a plummet into oblivion is your reward if you slip up

You can press the fire button to give Gerald an extra boost up ramps and use the space bar to brake Also (and you will not appreciate the importance of this until you are through the 'beginners' section and well into the game) you can change your point of view using the function keys

Your task is not only to complete the whole mapping task which involves hundreds of increasingly difficult screens but also to collect spinning jewels which can be found in the most inaccessible places There are also puzzles to solve, such as the 'music room where moving over squares on the floor plays notes, the purpose of which you must determine You have unlimited lives, but losing one causes you a time penalty

Spindizzy is brilliant – great graphics very complex a challenge to both though and speed of reaction Minimal sound – but nevertheless a vital purchase Buy it

Chris Jenkins

Program *Spindizzy* **Type** Arcade **Machine** Commodore 64 **Price** £9 95 **Supplier** Electric Dreams 31 Carlton Crescent Southampton, Hants

Is the King Kong?

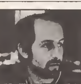
A long time ago, when the ZX80 was all the rage and the video arcades had just begun an arcade game came out that was described as 'The first full colour multi screen game' This game was known as *Donkey Kong* and hailed the way of the future Today it is now available for the QL and it is called *The King*

Once loaded up the game starts with you playing the part of a helpless factory worker called Mario, who has had his girl friend snatched from him. by an evil gorilla Mario tries to save her by climbing up the different levels of the factory only to find the gorilla taking her further up While he tries harder to get closer, the monkey persistently throws barrels at him in order for him to die

The controls are the cursor keys and the space bar is used to jump obstacles or get a hammer enabling you to smash the obstacles The game is by no means original but it is extremely addictive and quite well presented

Mathew Palmer

Program *The King* **Micro** QL **Price** £14 95 **Supplier** Micro Deal, Box 68, St Austell, Cornwall PL25 4YB



First Superman – now Redhawk

Tony Bridge looks through a batch of new releases, including Redhawk and Heavy on the Magick

The latest release from Melbourne House is, I'm glad to report, very interesting to adventurers. *Redhawk* concerns your exploits as Kevin Oliver/Redhawk, a combination of human and superhero not too far removed from Clark Kent/Superman or David Bannerman/Hulk. Unlike those two, however, your character doesn't have to undergo any particular traumas to become invincible – none of that tiresome finding an unoccupied phone booth or waiting to be smashed in the teeth. Just the simple utterance, "kwah", will suffice to turn you into the hooded wonder. But I'm getting ahead of myself: what strikes the player at the start is the layout of the game.

As Graham Taylor said in the magazine a couple of weeks back, the idea is so simple and so obvious it's surprising that no-one has thought of it before: a comic strip unfolds itself before your eyes as the game progresses, and speech bubbles contain the words that you have commanded your character to utter. As a superhero of real Marvel proportions, you find yourself pitted against equally super-villains; in this game, though, you can fight against evil or align yourself with the forces of darkness. The display reflects your popularity rating as well your strength as you make your way towards rescuing somebody or other from something or other.

From what I've seen, the actual adventure is not so hot (I'm sure that we'll see others in the series – indeed I hope so) but it is the friendly environment that is so interesting to see; this extends even to the saving, loading and restarting routines, and the on-screen editing of commands – this last is particularly useful, allowing the player to backtrack several inputs and either correct mistakes or re-use a recent command. The graphics are good (exactly the same on Spectrum and Amstrad versions, though time seemed to move more slowly in the Amstrad version for some reason) and the adventure, though rather basic, is well worth looking at.

By the time you read this, Level 9 should have released *The Price of Magik*, at least for the Commodore (see elsewhere in this issue), although the usual comprehensive range of micros should eventually be catered for. Judging by the sneak preview that I was given on the Atari ST, *Magik* is a return to mainstream adventures for Level 9: at the start, the player can walk up to an old house, climb the ivy thereupon, clamber into the attic and start exploring. I'm sure though that the problems met will be just as devious as previous Level 9'ers!

While talking of Level 9, its interest in the latest 16-bit computers has paid off for QL owners in the form of a three-pack of the original Level 9 adventures, the *Middle Earth* series. While the new versions follow the original story lines, Level 9 have taken advantage of extra memory to expand on the scenarios and make them even more wonderful than before.

Strong competition

This week, I caught my first glimpse of Magnetic Scrolls/Rainbird's opus for the Atari ST, *The Pawn* – as you'll know, this was first released on the QL as a text-only affair and I discussed the adventure at length in the Corner of October 16. The lengthy descriptions ensure a certain amount of atmosphere and there are several in-jokes to be enjoyed. The parser, though it was fairly spectacular on a quick look, doesn't live up to Magnetic Scroll's promise: at one point, a trapdoor is mentioned, but trapdoor doesn't appear in the vocabulary of the adventure. The authors are apparently would-be Infocom-bashers, though *The Pawn* resembles the Infocom classics like a herd of elephants resembles the Royal Corps de Ballet. There are many moments of charm, certainly, and the graphics on the new ST version are superb (and I could play with them for hours, pulling the pictures up and down like venetian blinds) but with Level 9 beavering away to bring its programs to the QL and ST/Amiga, the competition will be strong.

Good scenario

I've only got space to mention two more new releases, but they are both very interesting and worth your attention.

Ramjam is best known by adventurers for *Valkyrie 17*, a very droll text/graphics affair that enjoyed great success when it was released a year or so ago. Its new adventure has been some time coming but is a cracker. In *Terror of Trantoss*, some beautiful graphics support a good scenario in which the player can switch between two characters in classic adventuring and hack 'n' slay situations (see last week's issue for a preview).

Meanwhile, Gargoyle carries on with its range of idiosyncratic games – no other software house is quite like it, and it always comes up with something stunning. With *Heavy on the Magick*, Gargoyle has yet again done everything right. The graphics are, as usual, superb and evocative – the scenario concerns your character, Axil the able (or Axil the merely adequate) in his quest in the dungeons of Collodon's pile. Though this sounds like some rather personal disease, it's actually the perfect setting for some more hack 'n' slay, with dragons, wraiths and all the rest making an appearance for your delight. Though I keep getting stomped on by Apex, the trusty idiot, I found plenty to do, with examinable objects galore, lots of spells to use (once you figure out how), and all the usual Gargoyle puns.

There are 255 rooms to explore, 21 different animated monsters including wyverns, werewolves, vampires and all the usual goodies, 280 (count 'em) objects to examine and use – and the program recognises 400 words, which ought to be enough! Another Gargoyle classic!

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure.. on (Micro) ....

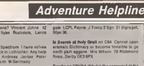
Problem..

....

Name..

Address..

....



ADVENTURE HELPLINE

Hampstead on Spectrum Where exactly do I find the lathe bracket? P Collingson Red House Thorpe Lane Fylingthorpe Whitby N Yorks Y022 4TN

Adventure Quest on Spectrum Can I get past Djinn M Oasis is there a way down rusty grating near start? Mr D J Ley 91 Allport Lane Bromborough Wirral Merseyside L62 7HL.

Red Moon on Spectrum How can I use spells the Iron always inhibits my Magic. David Edgar 1 High Parksail Erskine, Scotland PA8 7HY

Thats the Spirit on Spectrum How to get past the cat and the Phantom in the church Mr G Hoyle 15 Ashbourne Crescent Taunton Somerset TA1 2RA.

Woodbury End on Electron How do I get out of the darkened room? Miss I H Legal, 85 Yarborough CLose Godshill PO38 3HS Isle of Wight.

Fourth Protocol on Spectrum What does Buslolor mean and any other hints. S G Oglesby Grse RAF Gatow BFPO 45.

Marsport on Spectrum Which Objects manufacture R and Y tokens? Vincent Johns 12 Hawlands Avenue, Syke Rockdale, Lancs OL12 0BN.

Lord of the Rings on Spectrum I have solved part 1 but am now stuck in Lothlorian Any help gratefully received Andreas Jantze Peter Dalpetr, 8 8806 Viarheim W Germany

Land of Illusion on Atmos. How do I open the door to Sarthoge Castle Have got mushrooms inscription, and vanishing potion Martin Tubb 35 Poplar Court, Gap Road Wimbledon SW19

Bored part 3 on BBC What use is De-Bugger how do I open box in store? Peter Lord 8 Wallswood Gardens High Meadows, Exeter Devon

Sherlock on Spectrum How do you decode the codes given by Basil? Don Green Radiell 2673

Fourth Protocol on Spectrum What is the lift pass word Marc M 15a Grantbridge St, Islington London N1 8JN

Sea Quest on BBC How do I get the key from the Mermaid? Clive David 12 Gron Fferald Rhuubina Cardiff CF4 6ST

Madness and the Minotaur I cant find anything? Ak allows

Fourth Protocol part 3 on C64 How do I get into the industrial estate once I ve told guard the plot No which is Cl did I need an item to open gate LCPL Payne J Troop 2 Sqn 21 Sigregt. Bfpo 36.

In Search of Holy Grail on C64 Cannot open aramaic Dictionary or become invisible to go north past eggars Mrs Wilson 79 Richmond Road Derby DE3 8PX

Eureka on CBM64 What is the password at the beginning of the Carribean adventure? C Nicholas 123 Brimthorpe Hse, Agdon St. London EC1 V0BR

Bored of the Rings on Spectrum How do I find the pepper to get past the Morona Gate at the end of Part One? John Keen 120 Furness Road London NW10 8UH

Ring of Darkness on Dragon 32. Unable to survive the first stages of the game Tips would be grateful Miss M Book 11 Bradford Road Boston Lincs

Escape from Pulsar 7 on C64 How exactly do I find the cable? I think its in the wrecked cabin. Len Shuttleworth 12 Richborough Close, Orpington Kent BR5 3TQ.

Karateka on C64 How do I get past the door to Akuma s fortress It keeps falling on me Darren Grgory 26 Ludlow Grove Blackpool F72 0PZ

Starcross on **C64/Apple II**. No score or progress Any tips at all please Darren Gregory (for address, see above)



Mars bars and citadels

Tony Kendle welcomes the conversions of Bomb Jack end Moon Cresta, gives some tips for Superior's Citadel, and continues the Marsport solution

It has suddenly become fashionable in the computer games industry to be critical of licensed deals and arcade copies in particular Mel Croucher, ex of Automata, seems to be leading this crusade with calls for more originality in software design In many ways I agree with him especially that there should be room for the creative artist in the games world I felt Automata's *Deus Ex Machina* was, and is, excellent and the latest project, *ID* for CRL s Nu-Wave label contains some fascinating new concepts Both are important steps towards clarifying the future contribution computers can make to home entertainment for the more sophisticated player

Where I think our ideas differ is that I can t understand why a game that was initially created for a coin arcade machine should be regarded as somehow less valid or less creative than a game that has been designed from scratch

High quality

Computers are becoming more advanced every year, standards demanded of software are increasing even faster and most of our best games are of necessity becoming a team effort It is no longer reasonable to expect those who are skilled in programming to take on the role of games designer as well and once you have accepted the need for an ideas team it becomes irrelevant whether these are based abroad in a company such as Konami or Atari

Two of my favourite games of the moment are Elite's *Bomb Jack* and Incentive's *Moon Cresta*. Elite has deservedly struck a small goldmine with its extremely high quality conversions and it has to be said that they are in many cases much more playable than some of its earlier games – I mention no names but I'm sure that the image of helicopters relentlessly crashing into walls will spring to some people's minds

Moon Cresta has been a long time coming for the Amstrad and BBC, but the quality is again superb with subtle and clever attention to detail. Perfect addictive stuff for those spare half hours when you can't face 8-bit social commentary.

Richard Kercher of High Wycombe has written, voicing the unfortunately true complaint that for some time there have been no tips for the BBC micro However, rather than stopping there Richard has demonstrated that he is a man of resource and no small intellect by starting the ball rolling again with these tips for the new Superior Software game *Citadel*

1) To get past the mummies in the pyramid drop the idol head on to the platform Drop the green man idol on the coffin in the pyramid and get the crystal 2) To get past the witch drop the skull and two bones into the cauldron The witch passes over the cauldron and dies

3) In the lab drop the cannon ball and the bottle marked P (gunpowder) into the white cannon This enables you to get the crystal 4) Drop the stone blocks (the cyan coloured ones) as you pass Stonehenge to get extra energy

5) To get past the guard in the temple get the chicken and put it on the pad until it cooks Go to the temple and you won t get attacked 6) When using the starport don t collect the crown object in the palace until the last – it destroys Starport when you return

Richard's personal best score is 95 points and he now wants to know what the barrel is for I would like to echo that with a request for more help on this

Now then let s get on with some more tips for Gargoyle s *Marsport*. If you can remember back to before our little interlude with David Jones s *Spellbound* we left Commander John Marsh on Iaxa level just through the danger room Most players should have found the ice cream room on that level and within it the cornet and the ice pack The cornet is the key to the music room which you will find on Level F, and which contains a lute and a mute The ice pack is the key to the hot house on Level G where you will find a geranium for the plant room on Joly level If you haven't found these rooms yet, don't worry

Going back through the danger room on Iaxa level and exploring for a bit will soon bring you to the map room In here you will find three important objects – the Earth map, the Mars map and the Sun chart.

Bomb Jack from Elite

Hidden away

Exploration of Iaxa will also bring to light some glass as a flame both held in sectors patrolled by the sept so be careful The Sun chart, the glass and the frame can be factored together to make sunglasses (eyeshields) The Mars chart is the key to get into the bar when you find it (it s a Mars bar of course) and the Earth map is the key to get into the soil depot on Gill level The bar will contain tea whilst getting through the depot will give you access to a lift to a previously hidden part of level A, where you can try the sunglasses but in the Astronomy room You will then find an empty tank and also be able to get a lift down to level B

The object of the first part of the game is to find the three keys to m-central The first key can be found quite easily by just taking the up tube from Daly to Alba and going to the director s office. The second key is in the bank on level B To get into the bank you will need the dough from the bakery

Once you have got on to level B the most important room for you to find next is the oratory In here you will find a projector, a dais and a pointe (note the spelling!) The most immediately useful is the dais which when factored with the lute gives a Lead Suit. I must confess I was stuck for hours here, not expecting something as subtle as an anagram

With the lead suit you can cross the danger radiation room on this level This gives you access to a lift to a new part of Joly where you will find safety boots and earmuffs The boots are inevitably the key to the chemists back on Daly where you will find a syringe, some valium and some oxygen The latter can be factored with the empty tank to make an air tank More next week

Readers' survey

We reckon it's about time to find out exactly what you, the readers, think of *Popular Computing Weekly* – what you like about it, what you don't like, what you would like to see more of.

You can help us by filling in the survey printed below. In doing so, you'll also help the charity War on Want, because for every completed questionnaire we receive, we'll donate 10 pence to WOW. The money will go to its general fund which goes to help fight poverty in the Third World, just as does money spent on WOW's compilation tape for the Spectrum.

Send your completed survey off to Readers' Survey, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP, to reach us by Monday, June 16. We will publish the results in a future issue of the magazine.

1 Which of the following computers do you own?

- Acorn BBC ☐
- Acorn Electron ☐
- Amstrad 464/664/6128 ☐
- Amstrad PCW 8256/8512 ☐
- Atari ST ☐
- Atari 400/800 ☐
- Commodore 64 ☐
- Commodore C16 ☐
- Commodore 128 ☐
- MSX ☐
- Sinclair Spectrum ☐
- Sinclair QL ☐
- Other (please specify) . . .

2 When did you buy your first computer?

- Within last six months ☐
- Six months to 1 year ago ☐
- 1-2 years ago ☐
- More than 2 years ago ☐

3 How long have you had your current computer?

- Less than six months ☐
- Six months to 1 year ☐
- 1-2 years ☐
- More than 2 years ☐

4 Do you plan to buy a new computer this year?

- Yes ☐
- No ☐
- If yes, please specify model . . .

5 Which of the following peripherals do you own?

- Monitor ☐
- Printer ☐
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- Modem ☐
- Microdrive ☐
- Light pen ☐
- Graphics tablet ☐
- Plotter ☐
- Mouse ☐
- Other (please specify) . . .

6 Which of these peripherals do you plan to buy this year?

- Monitor ☐
- Printer ☐
- Disc drive ☐
- Modem ☐
- Light pen ☐
- Graphics tablet ☐
- Plotter ☐
- Mouse ☐

7 How much do you spend on software each month?

- Up to £10 ☐
- £10-20 ☐
- £20-30 ☐
- More than £30 ☐

8 How much time do you spend at your computer each week?

- Less than 2 hrs ☐
- 2-10 hrs ☐
- 10-20 hrs ☐
- More than 20 hrs ☐

9 What is the main use of your computer (tick one only)?

Programming	☐	Games	☐
Word processing	☐	Communications	☐
Graphics	☐	Music	☐

Other (please specify) ....

10 Do you progam in any of the following languages?

Basic	☐	Machine Code	☐
Pascal	☐	Forth	☐
Logo	☐	Lisp	☐
C	☐	Fortran	☐

Other (please specify) ....

11 How often, on average, do you buy *Popular Computing Weekly*?

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Buy every other week	☐	Buy once a month or less	☐

12 Do any other people read your copy of *Popular Computing Weekly*?

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3-5	☐	More than 5	☐

13 What is your main reason for buying *Popular Computing Weekly* (tick one only)?

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Other software reviews	☐	Hardware reviews	☐
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14 Please rate the following features according to whether you would like more, about the same or less coverage.

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15 How interested are you in the following subjects?

	Not at all interested	Somewhat interested	Very interested
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16 Which of the following magazines do you buy regularly?

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Computing with the Amstrad	☐
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Personal Computer World	☐
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Other (please specify)

17 Please give one way in which you think *Popular Computing Weekly* could be improved.

....

....

18 Name ....**Age** ....

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MAZE

by Dilwyn Jones

This program is a maze designer program which draws the maze on the screen using a moving green blob to show how the routine works and what routes it takes. You may like to use the *Make_A_Maze* procedure in your own programs.

The maze design algorithm is described first. Mazes generated have only one through path from the randomly generated entry point on the West side of the maze and the randomly generated exit point on the East side. There will, of course, be several random branches off the main route if the size of the maze is large enough and the dreaded Sinclair random number generator does its bit properly. These routes will all lead to dead ends because the routine only allows one through path. The maze is therefore realistic – as long as it is large enough.

The walls of the maze are bit mapped into the array *maze*. The width of the maze is specified by the variable *across* and the height of the maze by the variable *down*. A border of one element is required around the maze, hence the array is dimensioned using DIM maze(down + 1,across + 1).

Bits 0 to 3 of each element represent openings or walls out of each square in the maze.

bit 0 set = opening to the North) reset
bit 1 set = opening to the East) wall
bit 2 set = opening to the South) in that
bit 3 set = opening to the West) direction

The top left corner of the maze is maze(1,1) —NW
The top right corner of the maze is maze(1 across) —NE
The bottom left corner of the maze is maze(down 1) —SW
The bottom right corner of the maze is maze(down across) —SE

The entry point is held in *inx* and *iny* and the exit point in *outx* and *outy*. The entrance is always on the West side and the exit always on the East side – *inx* will therefore always be 1 and *outx* will always be equal to *across*.

During creation of the maze, bits four and five of each element are used to denote visited points in the maze and points leading to dead ends (ie "can't return here" points) respectively. If bit four is set to one, it means that the routine has already visited that point and can return there if re-tracing its steps from a dead end.

When such a point is re-visited on return from a dead end, it is flagged as leading to a dead end so that the computer will not attempt to go there again, by resetting bit four and setting bit five.

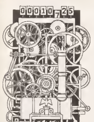
The program starts at the entrance and looks for unvisited points at random but with a slight weighting towards certain directions so that it tends to tie itself in knots to create a more complex maze. The maze is initially all walls, a grid if you like. Once a suitable point to move to is found, an opening is created between the old square and the new square by setting the appropriate bits in *both* squares and (re)/setting the appropriate *visit* bits.

The routine looks all around the present square for an unvisited square. If none is found, this is a dead end and steps must be taken to retrace back to a suitable point. If all points surrounding the present square have bit five set, all points in the maze have been visited and the maze is complete.

The reason for the border around the maze is to create a no-go area around the maze so that the computer will not step outside the maze – this means that no edge detection is necessary.

Next week we'll be using these principles in a 3-D maze type game. Meanwhile, if you'd like copies of both programs, send £2.50 plus a formatted microdrive or floppy disc (5¼" or 3½") to Dilwyn Jones, 4 The Crescent, Bangor, Gwynedd LL57 2AA.

```
100 REMark maze demo 1, draw a maize 2,0
 maze WHILE designing it
110 REMark by Dilwyn Jones.
120 MODE 4:WINDOW 512,256,0,0:PAPER 0:CL
S:REMark works in mode 4 or 8
130 WINDOW 442,200,32,16:PAPER 2:INK 7:C
LS:CSIZE 2,0:CLS#0
140 REMark size of maze
150 across=30:down=16:PRINT#0, Please wa
it - designing the maze
160 GRID:MAKE_A_MAZE:CLS#0
170 DEFine PROCedure MAKE_A_MAZE
180 DIM maze(down+1,across+1)
190 inx=1:iny=RND(1 TO down)
200 x=inx:y=iny:REMark entrance
210 maze(y,x)=maze(y,x)||32:REMark entr
ance, no exit
220 outy=RND(1 TO down):outx=across:REM
ark exit
230 REMark create no exit border
240 FOR ac=1 TO across:maze(0,ac)=32:ma
ze(down+1,ac)=32
250 FOR dn=1 TO down:maze(dn,0)=32:maze
(dn,across+1)=32
260 REMark set entrance, exit bits and
draw openings
270 maze(iny,inx)=maze(iny,inx)||8:BLOC
K 2,10,14,10*iny+1,2:REMark west entry
280 maze(outy,outx)=maze(outy,outx)||2:
BLOCK 2,10,14*(across+1),10*outy+1,2:REM
ark east exit
290 REMark arrows at entrance then exit
300 CURSOR 2,10*iny+1:PRINT CHR$(189):C
URSOR 14*(ac+1)+2,10*outy+1:PRINT CHR$(1
89)
310 REPeat outer
320 BLOCK 12,10,14*x+2,10*y+1,4:PAUSE
1:REMark green blob
330 BLOCK 12,10,14*x+2,10*y+1,2:REMark
 erase blob
340 IF (maze(y,x+1)&&48)<>0 AND (maze(
y,x-1)&&48)<>0 AND (maze(y+1,x)&&48)<>0
AND (maze(y-1,x)&&48)<>0 THEN
350 REMark this is a dead end square
360 maze(y,x)=(maze(y,x)&&239)||32
370 REMark now try to trace back this
 path check visit and wall bits
380 IF (maze(y-1,x)&&20)=20 THEN y=y-
1:NEXT outer:REMark North
390 IF (maze(y,x+1)&&24)=24 THEN x=x+
1:NEXT outer:REMark East
400 IF (maze(y+1,x)&&17)=17 THEN y=y+
1:NEXT outer:REMark South
410 IF (maze(y,x-1)&&18)=18 THEN x=x-
1:NEXT outer:REMark West
420 REMark can't trace back, end of m
aze
430 EXIT outer
440 END IF
450 REPeat inner
460 rand_no=RND(0 TO 9):REMark N=7,8,
9;E=0,1;S=2,3,4;W=5,6 - random direction
 with bias in certain directions
470 REMark create appropriate newy,ne
wx values don't update y,x yet
480 newx=x+(rand_no=0 OR rand_no=1)-(
rand_no=5 OR rand_no=6)
490 newy=y+(rand_no=2 OR rand_no=3 OR
 rand_no=4)-(rand_no=7 OR rand_no=8 OR r
and_no=9)
500 REMark newx,newy are the point to
 move to
510 REMark been there before? If not,
 it's OK
520 IF (maze(newy,newx)&&48)=0 THEN E
XIT inner
530 END REPeat inner
540 REMark Mark as a visited but not
dead end point
550 maze(newy,newx)=maze(newy,newx)||1
6
560 REMark mark an opening by setting
appropriate bits both places&draw
570 SELect ON rand_no
580 =7,8,9:maze(y,x)=maze(y,x)||1:maz
e(newy,newx)=maze(newy,newx)||4
590 BLOCK 12,1,14*x+2,10*y,2
600 =0,1:maze(y,x)=maze(y,x)||2:maze(
newy,newx)=maze(newy,newx)||8
610 BLOCK 2,10,14*(x+1),10*y+1,2
620 =2,3,4:maze(y,x)=maze(y,x)||4:maz
e(newy,newx)=maze(newy,newx)||1
630 BLOCK 12,1,14*x+2,10*y+10,2
640 =5,6:maze(y,x)=maze(y,x)||8:maze(
newy,newx)=maze(newy,newx)||2
650 BLOCK 2,10,14*x,10*y+1,2
660 END SELect
670 REMark move to new place
680 x=newx:y=newy
690 END REPeat outer
700 REMark exit point marker, not stric
tly needed
710 maze(outy,outx)=(maze(outy,outx)&&2
39)||32
720 END DEFine MAKE_A_MAZE
730 DEFine PROCedure GRID
740 REMark draw maze with no openings
750 FOR dn=1 TO down+1:BLOCK 14*across+
2,1,14,10*dn,7
760 FOR ac=1 TO across+1:BLOCK 1,10*dow
n+1,ac*14,11,7
770 END DEFine GRID
```



COLOUR CODES

by Peter Graves

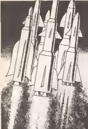
All electronics engineers have to learn the colour codes used on resistors to denote their value. The program below gives how-to instructions and practice in reading the value of resistors using three coloured bands.

Resistors values can be indicated in steps of one ohm by using three bands. However, they are not supplied in all possible values but in steps of value known as preferred values. Thus you can buy a 100 ohm resistor or a 120 ohm resistor but not (except to special order) a 107 ohm resistor. There are several sets of preferred values, the most common has been used starting off 10, 12, 15 ohms. The range of values covered in the program is between 10 ohms and 10 Megohms. A short set of instructions with an example is given in the program.

Programming note: To make the instruction pages easier to read the display is switched into the lower case mode (exactly as if the Shift and Commodore keys had been pressed together). This gives an odd appearance to the program listing in the upper case mode – capital letters appear as the graphics character obtained if the shift key and that letter are pressed.

Rem statements have been added to the appropriate lines but, of course, these can be omitted when typing in the program.

```
[illegible]
```



PLANETS POSITIONS

by David Webber

This week your final helping of listing for our Astronomy program, which will calculate the positions of the planets, and graphically display them up against the background of constellations.

As an aid to de-bugging, we've found that the most common error is confusing lower case l with the number one – so if you get an unexpected syntax error on entering a line, check for this first.

For the faint hearted, tape copies are available from David Webber at a price of £2.50. Write to him at Cummel Fayle, Ballaterson, Ballaugh, Isle of Man.

```
3700 REM ----------------------------------
3710 REM  FROM ECLYPTIC TO EQUATORIAL CO-ORDS
3720 REM ----------------------------------
3730 ma=lm
3740 b=vg
3750 ec=23.45
3760 s1=(SIN(b)*COS(ec))+(COS(b)*SIN(ec)*SIN(ma))
3770 DEF FNs(x)=ATN(x/SQR(-x*x+1))
3780 s1=FNs(s1)
3790 d2=INT(s1):d3=INT((s1-d2)*60)
3800 t1=(TAN(ma)*COS(ec))-(TAN(b)*SIN(ec)/COS(ma))
3810 t1=ATN(t1)
3820 IF t1<0 THEN t1=t1+360
3830 IF t1>lm+90 THEN t1=t1-180
3840 IF t1<lm-90 THEN t1=t1+180
3850 h1=INT(t1/15):h2=INT((t1/15-h1)*60)
3860 RETURN
3900 REM -------------
3910 REM  SCREEN FORMAT
3920 REM -------------
3930 a$="   ### ##.#   "
3940 PRINT USING a$;lm;vg;
3950 PRINT TAB(44)USING"   ### ";h1;
3960 PRINT USING" ##";h2;
3970 PRINT TAB(60)USING"### ";d2;
3980 PRINT USING" ##";d3
3990 RETURN
4000 REM ----------------------
4010 REM  S T A R   C H A R T   1
4020 REM ----------------------
4030 BORDER 0:INK 1,24:INK 0,0
4040 GOSUB 5800
4050 y=18
4060 FOR x=36 TO 620 STEP 60:MOVE x,37:y=y-1:PRINT y;:NEXT
4070 MOVE 47,17:PRINT"Right Ascension - hours   Date -";" ";d;"/";m;"/";y1;
4080 GOSUB 6000
4090 FOR i=1 TO 201:READ a,b:PLOT a,b:NEXT i
4100 DATA 45,290,59,336,61,385,60,240,60,258,48,280,35,243,57,246
4110 DATA 68,243,63,238,60,238,82,189,59,87,61,74,95,280,60,58
4120 DATA 92,62,99,64,235,367,227,384,278,360,298,393,289,382,132,347
4130 DATA 175,355,218,330,120,335,121,319,148,312,162,204,188,388,195,393
4140 DATA 308,312,182,322,140,332,120,344,158,255,210,312,220,318,250,335
4150 DATA 225,305,307,280,318,298,318,388,322,280,248,25_,226,358,257,246
4160 DATA 255,218,240,215,242,212,235,180,272,180,275,197,297,295,288,305
4170 DATA 331,192,368,85,126,181,155,218,310,100,317,82,325,84,177,228
4180 DATA 306,238,195,190,211,143,112,120,150,72,133,45,158,41,160,45
4190 DATA 162,156,180,150,200,147,171,140,163,124,157,113,165,118,140,165
4200 DATA 169,105,203,100,175,68,260,69,328,79,233,77,222,50,244,82
4210 DATA 253,78,280,77,301,71,302,33,307,51,272,172,270,168,263,167
4220 DATA 270,154,227,162,275,160,350,149,232,137,237,150,335,347,348,345
4230 DATA 502,359,345,375,338,380,376,380,379,372,398,316,354,318,338,330
4240 DATA 352,315,357,317,457,335,512,381,338,270,53_,380,542,340,574,338
4250 DATA 368,270,452,398,444,331,464,337,412,328,453,315,467,382,470,379
4260 DATA 510,338,502,320,500,319,510,308,482,278,477,256,459,230,460,237
4270 DATA 480,292,482,243,518,252,533,280,898,220,420,232,420,241,435,252
4280 DATA 418,256,485,255,482,235,442,208,442,135,478,133,472,178,490,163
4290 DATA 515,178,240,145,562,182,395,182,415,89,456,180,325,100,345,145
4300 DATA 338,170,260,180,372,181,290,182,409,181,418,143,413,133,462,123
4310 DATA 507,133,370,133,381,125,541,122,204,73,340,70,367,58,302,48
4320 DATA 495,45,557,58,500,43,408,48,422,48,423,44,341,270,335,263
4330 DATA 377,298,637,332,635,390,598,248,604,243,615,248,621,280,585,253
4340 DATA 616,275,600,227,637,235,600,168,618,158,635,133,585,108,623,87
4350 DATA 610,65
4360 TAG
4370 ra=ta:dec=da:GOSUB 4460:PRINT"Me";
4380 ra=tb:dec=db:GOSUB 4460:PRINT"Mo";
4390 ra=tc:dec=dc:GOSUB 4460:PRINT"V";
4400 ra=te:dec=de:GOSUB 4460:PRINT"Ma";
4410 ra=tf:dec=df:GOSUB 4460:PRINT"J";
4420 ra=tg:dec=dg:GOSUB 4460:PRINT"S";
4430 ra=th:dec=dh:GOSUB 4460:PRINT"U";
4440 ra=ti:dec=di:GOSUB 4460:PRINT"N";
4450 ra=tk:dec=dk:GOSUB 4460:PRINT"P";:GOTO 4500
4460 ra=(360-ra)*4+INT:dec=dec*4+330
4470 IF ra>=1000 AND ra<=1340 THEN ra=ra-960 ELSE ra=-100
4480 MOVE ra,dec
4490 RETURN
4500 MOVE 470,17:PRINT"Press for next chart";:TAGOFF
4510 IF INKEY$="" GOTO 4510
4600 REM ----------------------
4610 REM  S T A R   C H A R T   2
4620 REM ----------------------
4630 CLS:GOSUB 5800
4640 y=18
4650 FOR x=32 TO 470 STEP 60:MOVE x,37:y=y-1:PRINT y;:NEXT
4660 y=10
4670 FOR x=516 TO 620 STEP 60
4680 MOVE x,37:y=y-1:PRINT y;:NEXT
4690 MOVE 47,17:PRINT"Right Ascension - hours   Date -";" ";d;"/";m;"/";y1;
4700 GOSUB 6000
4710 FOR i=1 TO 170:READ a,b:PLOT a,b:NEXT i
4720 DATA 92,397,66,380,60,372,62,394,73,380,81,395,48,398,51,262
4730 DATA 75,250,85,282,90,268,77,187,68,178,75,135,75,115,70,108
4740 DATA 58,83,54,69,58,58,168,275,183,283,178,268,173,287,178,280
4750 DATA 149,332,162,286,192,372,192,341,288,287,230,373,358,288,335,382
4760 DATA 287,372,308,283,108,338,108,338,113,335,122,338,158,326,135,335
4770 DATA 132,345,112,298,123,300,116,292,108,302,118,388,137,262,121,247
4780 DATA 114,239,118,208,273,292,278,332,315,333,282,263,381,234,268,219
4790 DATA 338,175,273,197,302,215,322,210,131,159,149,181,175,185,162,119
4800 DATA 312,154,328,150,333,130,338,130,208,125,172,108,218,112,255,129
4810 DATA 263,129,273,120,104,158,108,115,108,102,198,52,210,74,263,72
4820 DATA 142,41,131,52,198,66,112,48,127,81,125,74,148,75,143,72
4830 DATA 165,57,168,48,389,378,412,380,442,385,458,280,508,335,507,268
4840 DATA 519,372,328,287,263,292,412,338,437,263,457,348,482,263,335,276
4850 DATA 392,285,465,302,446,302,458,318,472,327,478,318,455,289,453,268
4860 DATA 392,287,540,335,542,308,548,292,338,268,578,358,433,219,455,320
4870 DATA 472,168,556,248,554,285,587,283,344,353,380,234,330,245,510,238
4880 DATA 483,218,495,185,472,161,638,170,483,172,438,155,420,155,415,138
4890 DATA 438,112,400,112,372,95,390,87,380,167,380,179,387,162,404,151
4900 DATA 382,152,382,130,280,158,348,155,374,132,404,72,435,95,482,76
4910 DATA 533,118,539,87,563,78,448,53,492,68,335,46,574,298,575,137
4920 DATA 578,61,608,347,597,335,288,319,622,288,638,302,600,328,616,331
4930 DATA 605,245,615,335,602,182,638,218,592,119,623,72,621,74,612,46
4940 DATA 603,48,628,42
4950 TAG
4960 ra=ta:dec=da:GOSUB 5050:PRINT"Me";
4970 ra=tb:dec=db:GOSUB 5050:PRINT"Mo";
4980 ra=tc:dec=dc:GOSUB 5050:PRINT"V";
4990 ra=td:dec=dd:GOSUB 5050:PRINT"Ma";
5000 ra=tf:dec=df:GOSUB 5050:PRINT"J";
5010 ra=tg:dec=dg:GOSUB 5050:PRINT"S";
5020 ra=th:dec=dh:GOSUB 5050:PRINT"U";
```

```
5030 ra=tj:dec=dj:GOSUB 5700:PRINT"N";
5040 ra=tk:dec=dk:GOSUB 5050:PRINT"P";:GOTO 5
090
5050 ra=(360-ra)*4+100:dec=dec*4+220
5060 IF ra>=580 AND ra<=1660 THEN ra=ra-480 E
LSE ra=-100
5070 MOVE ra,dec
5080 RETURN
5090 MOVE 470,17:PRINT"Press for next chart";
:TAGOFF
5100 IF INKEY$="" GOTO 5100
5200 REM ---------------------
5210 REM  S T A R   C H A R T   3
5220 REM ---------------------
5230 CLS:GOSUB 5800
5240 y=24
5250 FOR y=152 TO 620 STEP 60:MOVE 1,37:y=y-1
:PRINT y;:NEXT
5260 MOVE 47,17:PRINT"Right Ascension - hours
.   Date -"|" "(#|"/"|#|" "y|(
5270 MOVE 34,37:PRINT 1;:MOVE 96,37:PRINT 0;

5280 GOSUB 6000
5290 FOR x=1 TO 234:READ a,b:PLOT a,b:NEXT x
5300 DATA 93,378,82,340,93,333,98,278,50,250,
60,145,77,50,78,43
5310 DATA 198,288,213,377,210,347,162,330,184
,350,215,350,178,318,185,315
5320 DATA 218,321,232,323,241,323,181,278,180
,267,186,262,242,257,218 245
5330 DATA 272,257,275,259,264,246,260,240,287
,257,295,281,263,280,250,275
5340 DATA 304,273,310,274,310,270,311,261,288
,259,262,397,321,378,298,252
5350 DATA 270,239,330,320,107,207,129,242,150
,248,140,361,190,232,162,235
5360 DATA 160,325,125,227,232,215,190,225,190
,217,199,216,297,185,275,173
5370 DATA 253,198,218,218,273,213,208,187,218
,161,171,187,175,162,170,153
5380 DATA 280,118,273,110,295,118,289,159,268
,151,200,149,317,147,325,188
5400 DATA 320,168,335,170,326,166,267,98,288,
88,295,68,268,85,296,43
5410 DATA 170,100,187,110,290,60,218,85,192,8
7,174,85,170,87,115,105
5420 DATA 108,87,134,68,232,78,219,60,210,53,
298,50,175,42,195,45
5430 DATA 341,330,358,317,378,319,298,307,498
,372,419,367,410,364,407,248
5440 DATA 415 350,248,388 540,372,288,365,498
,367,863,368,542,545,522,342
5450 DATA 298,322,492,238,475,332,468,337,584
,208,560,298,389,277,368,308
5460 DATA 347,358,367,348,375,331,358,262,288
,755,348,266,488,278,399,273
5470 DATA 585,232,352,222,298,188,345,298,587
,293,365,298,362,387,418,298
5480 DATA 430 186,412,157,436,188,558,381,526
,357,488,270,479,239,475,232
5490 DATA 462,234,865,180,442,288,408,237,497
,238,252,229,579,208,585,298
5500 DATA 555,188,308,178,552,182,513,157,502
,128,487,158,578,188,578,175
5510 DATA 578,148,562,118,388,113,548,187,534
,82,550,78,527,51,511,47
5520 DATA 607,50,475,68,488,68,488,72,472,72,
388,154,388,147,278,142
5530 DATA 397,134,404,132,412,112,420,110,438
,118,452,135,445,148,460,97
5540 DATA 442,82 458,72,288,42,382,88,407,188
,298,107,392,117 382,138
5550 DATA 372,118,363,114,358,112,347,118,638
,388,622,283,585,238,585,338
5560 DATA 592 327,598,328,608,338,612,335,609
,345,598,383,608,298,382,293
5570 DATA 384,282,595,288,684,288,598,287,593
,278 393,283,622,198,584,168
5580 DATA 585 128,584,115,888,182,628,42,688,
56,585,86,582 85,672,81
5590 DATA 600,85,618,78,614,73,618,58
5600 TAG
5610 ra=ta:dec=da:GOSUB 5700:PRINT"Ma";
5620 ra=tb:dec=db:GOSUB 5700:PRINT"Me";
5630 ra=tc:dec=dc:GOSUB 5700:PRINT"V";
5640 ra=td:dec=dd:GOSUB 5700:PRINT"Ma";
5650 ra=tf:dec=df:GOSUB 5700:PRINT"J";
5660 ra=tg:dec=dg:GOSUB 5700:PRINT"S";
5670 ra=th:dec=dh:GOSUB 5700:PRINT"U";
5680 ra=tj:dec=dj:GOSUB 5700:PRINT"N";
5690 ra=tk:dec=dk:GOSUB 5700:PRINT"P";:GOTO 5
740
5700 ra=(360-ra)*4+100:dec=dec*4+230
5710 IF ra>=100 AND ra<=380 THEN ra=ra-0 ELSE
 ra=-100
5720 MOVE ra,dec
5730 RETURN
5740 MOVE 470,17:PRINT"Press for new date";:T
AGOFF
5750 WHILE INKEY$="":WEND:CLS:BORDER 18:INK 1
,9:INK 0,18:RUN 400
5800 REM ---------------
5810 REM  D R A W   F R A M E
5820 REM ---------------
5830 PLOT 0,0
5840 DRAW 0,399
5850 DRAW 639,399
5860 DRAW 639,0
5870 DRAW 0,0
5880 MOVE 47,40:DRAW 47,398
5890 MOVE 0,40:DRAW 639,40
5900 MOVE 47,220:DRAW 639,220
5910 TAG
5920 RETURN
6000 REM ---------------
6010 REM  DECLINATION DEG.
6020 REM ---------------
6030 z=-50
6040 FOR c=60 TO 390 STEP 60
6050 MOVE 15,c
6060 z=z+10
6070 PRINT z;
6080 NEXT
6090 TAGOFF
6100 FOR x=1 TO 18
6110 LOCATE 2,x+3
6120 a$="declination deg"
6130 PRINT MID$(a$,x,1);
6140 NEXT
6150 RETURN
```

Programming:Atari ST

PAINTER

by Bruce Pople

Art-100 is designed to run on the Atari ST-520 with a black and white monitor. It is an on screen painting program where impressive results can be obtained very quickly.

The program is controlled by the mouse and no key depressions are needed while drawing. It also makes good use of the GEM routines which are accessible from Basic, especially the one which removes GEM's control over the program. By turning GEM off, running speed is greatly increased.

Before typing in anything though, more memory is needed, so the graphics buffer must be switched off. If you do not know how to do this read the Errata sheet at the back of the ST Basic manual.

The program allows filled circles and ellipses as well as boxes and lines. You are also given a selection of shaded pat-

```
15    on error goto 4000                       :rem error trap
20    n=30:l=40:r=12                           :rem set variables
50    let lft:m=2:n=13:z=1:k=60:y=50           :
60    GOSUB SCSET                              :rem ***********
70    GOSUB 3030                               :rem * set up *
80    GOSUB CTEST                              :rem * screen *
90    gosub ini                                :rem *        *
95    gosub rdi                                :rem *        *
98    gosub nti                                :rem **********
99    k=1:gosub ttest                          :
100   main:rem control                         :
130   aeage                                    :
135   poke systab+24,1                         :rem turn gem off (DANGEROUS!)
140   gintout = peek (q0+12)                   :
150   gemsys (79)                              :
160   x= peek (gintout +2)                     :rem ****************
170   y= peek (gintout +4)-34                  :rem * 100 mouse 200 *
180   k= peek (gintout +6)                     :rem ****************
190   if k= 3 then goto 250                    :rem fill?
200   if y<y5 THEN GOSUB CTEST                 :rem change fill pattern?
205   if x<x5 THEN GOSUB ETEST                 :rem change cursor/dimension?

210   if k = 1 then gosub lfind                :rem print pattern?
220   if k=2 then GOSUB del                    :rem delete pattern?
230   if k = 9 then poke systab +24,0          :rem turn gem on again
240   goto 130                                 :
250   fill x,y                                 :rem fill pattern
260   goto 200                                 :
270   DB:rem                                   :rem ***************
280   linef x-.5el,y .5eh,x-.5el,y+.5eh:rem *             *
290   linef x-.5el,y+.5eh,x+.5el,y+.5eh:rem * box print   *
300   linef x+.5el,y+.5eh,x-.5el,y-.5eh:rem * routine     *
310   linef x+.5el,y-.5eh,x-.5el,y-.5eh:rem *             *
320   return                                   :rem ***************
330   lfind:lbds systab+24,1                   :rem
250   if q=2 then goto circ                    :rem goto routine
```

terns in which to fill your drawings. When the program is first entered and run, the output screen will be cleared and brought to full size.

A selection of patterns will appear at the top of the screen, and a list of options on the left hand side.

To change either the shading pattern or the cursor type, move the arrow on to your choice and press the left hand cursor key. To change the cursor dimensions (Height, Length and Radius) move over the option and use the left mouse key to increase the variable, and the right hand key to decrease the variable. The radius variable only applies to the circle cursor.

When drawing, the left mouse button prints the selected option, while the right button deletes it. Both buttons pressed at once cause the area surrounding the cursor to be filled. Watch for pixel gaps!

To get a screen dump of your masterpiece press the alternate key and help. The program has a lot of scope for additional routines and alterations, it also shows that the relatively slow ST Basic can run fast enough to be used seriously.

```
340   if q=4 then goto elli              :rem
350   if q=5 then goto box               :rem goto as atari basic does
not
360   if q=6 then goto draw              :rem  goto "variable name,numb
er"
370   RETURN                             :rem
380   CIRC:rem                           :rem
390   pcircle x,y,R:return               :rem draw circle
400   DRAW:  LINEF X- SeL,Y,X+ SeL,Y     :rem draw horizontal line
410   RETURN                             :
420   ELLI: PELLIPSE X,Y,,SeL,.5*H       :rem draw ellipse
430   RETURN                             :
440   ENDPROG:  poke systab+24,0         :
450   end                                :
460   del: gosub lind                    :rem Delete cursor routine
470   color 0,0,0,n,m                    :rem
480   gosub lind                         :rem
490   color 1,1,1,n,m                    :rem
500   return                             :rem
510   SCSET                              : rem SETS UP SCREEN AND VARIA
BLES
520   COLOR 1,1,1                        :
530   FULLW 2:CLEARW 2                   :
540   RESTORE 570  :FOR N=1 TO 7         : rem
550   READ L,W$:GOTOXY 0,L:?W$:NEXT      :
552   linef 640,22,57,22:linef 57,22,57,400 :
560   RETURN                             :
570   DATA 2,CIRCLE,4,ELLIPSE,6,BOX,8,LINE,10,HEIGHT,13,LENGHT,16,RAD
IUS
580   boxs: rem printing boxes           :
590   POKE SYSTAB +24,1                  :
600   for n= 0 to 34                     :rem  box routine
610   linef n*16,0,n*16+15,0             :
620   linef n*16,0,n*16,18               :
630   linef n*16+15,18,n*16,18           :
640   linef n*16+15,18,n*16+15,0         :
650   color 1,1,1,n+1,2                  :
660   IF N>23 THEN      color 1,1,1,n-22,3: 
670   fill n*16+7, 6                     : rem  fills in each box
680   next                               : rem  at the top of screen
690   POKE SYSTAB +24,0                  :
700   return                             :
2000  ctest : if k<>1 then bm:   return      :
2005  if y  >83 and x<90 then goto ttest      : rem shade change
2010  COLOR 0,0,0:LINEF X1*16,20,X1*16+15,20 :
2020  let x1= INT(x/16)                  :
2030  n= x1+1:m=2                        :
2035  if x1>23 then n=X1-22:m=3          :
2040  if x1>34 then X1=0 :GOTO 2030      :
2050  m=0                                :
2060  COLOR 1,1,1,N,M                    :
2070  LINEF X1*16,20,X1*16+15,20         :
2080  return                             :
3000  ttest:if k=0 then return           : rem   change cursor mode
3005  if y>167 then goto adjust          :
3025  gotoxy 0,q+1 :?"    "              :
3030  if y>133 and y<167  then q=0       :
3040  if y>100 and y<133  then q=6       :
3050  if y>66  and y<100  then q=4       :
3060  if y>32  and y<66   then q=5       :
3070  gotoxy 0,q+1  :?"^^^^^"            :
3080  k=0:          return               :
3090  adjust:if y>167 and y<216 then goto ht :rem change variables
3100  if y>216 and y<265 then goto ln    :
3110  if y>265 and y<340 then goto rd    :
3120  return                             :
3130  ht:if h< 5 then k=0:h=1: goto ht1  : rem alters ellipse and
3140  if k=1 then let h=h+1              :    rem box height
3150  if k=2 then let h=h-1              :
3160  ht1:gotoxy 0,11:?h;" "             :
3170  gosub eval:return                  :
3180  ln:if l< 8 then k=0:l=1: goto ln1  : rem alters boxes lenght
3190  if k=1 then let l=l+1              :    rem and line lenght
3200  if k=2 then let l=l-1              :
3210  ln1:gotoxy 0,14:?l;" "             :
3220  gosub eval:return                  :
3230  rd:if r< 8 then k=0:r=1: goto rd1  : rem changes circle radius
3240  if k=1 then let r=r+1              :
3250  if k=2 then let r=r-1              :
3260  rd1:gotoxy 0,17:?r;" "             :
3270  gosub eval:return                  :
3280  eval:      if h>r then let y5=20+.5*h :rem calculate boundries
3290  if r>h then let y5=20+r+1          :
3300  if l>r then let x5=60+.5*l         :
3310  if r>l then let x5=60+r+1          :
3320  k=0:    return                     :
4000  poke systab+24,0                   :
4010  end                                :
5000  rem DO NOT TYPE IN REM STATEMENTS , THEY ARE NOT NECESSARY.
```

Desk File Run Edit Debug

OUTPUT

CIRCLE

ELLIPSE

BOX

LINE

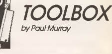
HEIGHT
42

LENGHT
48

RADIUS
5







TOOLBOX

by Paul Murray

This week the final instalment of our marathon series of machine code utilities for your Spectrum – together with a comprehensive reminder on what has gone before To finish off then, we have Dump First of all, type *Clear 61900* – (in fact, you should do this every time you enter any of the code from the whole Toolkit suite) Now run the Basic loader we printed all those weeks ago and enter the code listed this week If the checksums come up OK, save the code to tape

Dump is a variable dump routine which will produce a listing of the variables contained in memory at the time at which it is called together with the values associated with them (except for arrays)

Simple numeric variables are displayed in the form
Name = value
and simple string variables are shown as
Name$ = "Text"

Control variables (ie, those associated with *For-Next* loops), are differentiated from ordinary numeric variables by having a 'greater than' symbol to the left of their names, for example
>Name = Value

The values of the elements of string and numeric arrays are not displayed, however their dimensions are given inside parentheses in the fashion used in DIMing them for example
A(7 8 9) Deriving from Dim A(7,8 9)
or
Q$(5 10) Deriving from Dim O$(5,10)

Since the size and number of dimensions is given it is left to the user, if he or she so wishes to produce a *For-Next'* routine to print out the actual values of the elements of the array

The routine is called by Randomize Usr 65071 and output may be sent either to screen or printer, using
Poke 65071 Out5put
where Output = 2 results in screen dump whilst Output = 3 sends the dump to the printer

Finally, it you have fallen at the last hurdle in the typing stakes (or if you've missed one or two weeks) a tape copy of the whole of the Toolbox suite can be obtained from Paul Murray for £3 00 Write to 5 Hanham Mills, Hanham Bristol, BS15 3NU

Toolbox Command Summary

NAME	CALL AT	PARAMETERS
COMPACT	62000	NONE
TRACE	62331	SPEED CONTROL Poke 62335 (0 = SINGLE STEP ELSE 1 TO 255 = FAST TO SLOW) O/P MEDIUM POKE 62387 (2 = SCREEN, 3 = PRINTER)
RENUMBER	62704	BV = BASE VALUE INC = INCREMENT ST = START LINE FIN = FINISH LINE
AUTO	63718	BV = BASE VALUE INC = INCREMENT
HEADER	64010	NONE
ERROR	64163/64167 (GOsub/Goto)	LIN = LINE TO BRANCH TO ON ERROR (ERROR CODE PIKCED UP AT 64283)
OELETE	64493	FL = FIRST LINE LL = LAST LINE
SEARCH	64613	F$ = 'FIND' STRING R$ = 'REPLACE' STRING
DUMP	65071	O/P MEDIUM POKE 65075 (2 = SCREEN $ = PRINTER)

65071	205	107	13	62	2
65076	205	1	22	42	75
65081	92	237	91	89	92
65086	27	229	167	237	82
65091	225	200	126	230	224
65096	7	7	7	61	61
65101	229	135	95	22	0
65106	33	102	254	25	94
65111	35	86	225	1	58
65116	254	197	213	126	230
65121	31	198	96	35	201
65126	114	254	151	254	177
65131	254	228	254	245	254
65136	252	254	229	215	62
65141	36	215	62	61	215
65146	62	34	215	225	78
65151	35	70	35	126	229
65156	197	215	193	225	35
65161	11	120	177	32	244
65166	229	62	34	215	62
65171	13	215	225	201	229
65176	215	62	61	215	225
65181	17	146	92	1	5
65186	0	237	176	229	239
65191	224	56	205	227	45
65196	62	13	215	225	201
65201	229	215	62	40	215
65206	225	78	35	70	35
65211	9	229	237	66	86
65216	35	78	35	70	35
65221	229	213	205	43	45
65226	205	227	45	209	21
65231	122	183	40	8	213
65236	62	44	215	209	225
65241	24	230	225	62	41
65246	215	62	13	215	225
65251	201	229	215	225	126
65256	229	203	191	215	225
65261	203	126	35	40	245
65266	229	24	164	229	215
65271	62	36	215	24	183
65276	229	245	62	62	215
65281	241	215	62	61	215
65286	225	205	157	254	17
65291	13	0	25	201	0

CHECKSUM=30374

Scrolling an CBM64

by Jon Chatten

This is a "block scroll" program ie scrolling the background to the left as your character moves right. A block scroll scrolls the screen 1 whole character in the direction you choose. Here the bottom six lines are scrolled leaving the rest of the screen static (for score and lives etc). To use the program type the basic loader, which includes a test program.

To use the scroll in your own programs type out Lines 20-28 of the basic listing into your program and use "*SYS 49152*" to scroll to the bottom six lines 1 character space. The program scrolls character memory and not colour memory.

```
10 REM *** HORIZONTAL BLOCK ***
12 REM ***    SCROLLING     ***
14 REM ***  BY JON CHATTEN  ***
16 REM ***   CODE LOADER.   ***
18
20 FORI=49152TO49235:READA:POKEI,A:NEXT
22 DATA162,0,160,0,189,248,6,157,80,195,200,24,138,105,40,170,224,240,208,240
24 DATA162,0,189,248,6,157,248,6,189,32,7,157,32,7,189,73,7,157,72,7,189,113,7
26 DATA157,112,7,189,153,7,157,152,7,189,193,7,157,192,7,232,224,40,208,215,162
28 DATA0,160,0,189,80,195,153,31,7,232,24,152,105,40,168,192,240,208,240,96
30
32 REM ***    TEST PROGRAM   ***
34
36 PRINT"[clr]"
38 PRINT"HELLO THIS IS JUST A TEST TO SEE IF THE "
40 PRINT"SCROLLING PROGRAM WILL WORK AND THERES  ",
42 PRINT"NO ERRORS    IF THESE INSTRUCTIONS      "
44 PRINT"ARE NOT SCROLLING TO THE LEFT , CHECK   "
46 PRINT"THE DATA YOU HAVE TYPED IN FOR ERRORS  "
48 PRINT"HIT RETURN IF OK, ELSE HIT RUN/STOP.. .#   POKE56295,0
50 SYS49152:FORG=1TO100:NEXTG
51 GETA$:IFA$<>CHR$(13)THEN50
52 FORG=1TO300:SYS49152:NEXTG:PRINT"ALL WORKING O.K.":END

READY
```

Disc Utility on Amstrad

by D G Shedden

This short utility program eliminates the need to *Cat* your discs before running to decide which of the file names is the one that should be entered.

The bare program (without the *Rems* except Line 1000) should be saved on each of your discs as *Index*. Each time you add a program it is only necessary to add a *Data* line containing the normal name of the program followed by a comma and then the disc loading title.

If you are tidy minded the line numbers can be arranged to keep the titles in alphabetical order but this is not necessary.

To use the program insert a disc then *Run "INDEX"*. All program titles will then be displayed with an associated number. When the number is entered the selected program will then load as normal.

A maximum of 21 titles can be displayed, but an absolute maximum of 23 titles can be shown by scrolling up the heading. This is normally more than adequate, particularly when commercial programs are on the disc.

```
10 MODE 1:DIM x$(23),y$(23)
20 LOCATE 15,1:PRINT"DISC MENU":PRINT
30 X=1
40 WHILE x$(x-1)<>"zzz"
50 READ x$(x),y$(x)
60 PRINT x;"}...";x$(x)
70 x=x+1
80 WEND
90 LOCATE 1,X+1:PRINT CHR$(18):PRINT
100 PRINT"PLEASE ENTER SELECTION 1 to";
x-2:PRINT"or 99 to CHANGE TO ANOTHER
 DISC ";:INPUT" ",y
110 IF y=99 THEN 3000
120 CLS:LOCATE 13,1:PRINT"LOADING ";x$(y)
130 RUN y$(y)
1000 REM ** ENTER DATA lines here in the
form DATA PROGNAME,disc name
1010 'e.g.1010 DATA  COMBAT LYNX,combat
1020 'e.g.1020 DATA  MASTERCALC,mastload
1030 'e.g.1030 DATA  TASWORD,tasword
2000 DATA zzz,zzz
3000 CLS:LOCATE 1,10:PRINT"INSERT NEW DISC
THEN PRESS ANY KEY"
4000 WHILE INKEY$="":WEND:RUN"INDEX"
```

Break Key on Spectrum

by David Tummey

First type the program into the computer and then follow the instructions on screen. When it asks for a key to be pressed for the new Break key, press the key you wish to use, but remember that only the old Break key works when loading in a new program.

The new Break key will break out of all Basic programs (even in *Input* statements) and will break out of some machine code routines.

To save the program type *Goto 9999*.

Remember that after every *New* statement you use, the new Break key must be re-installed by typing *Randomize Usr 65120*.

```
4 CLEAR 65119
5 GOSUB 200
10 FOR x=65120 TO 65126
20 READ a: POKE x,a: NEXT x
30 DATA 62,9,237,71,237,94,201
40 FOR x=65129 TO 65146
50 READ a: POKE x,a:NEXT x
60 DATA 255,243,245
70 DATA 58,8,92,254,n,32,5,241
,251,205,3,19
80 DATA 241,251,201
90 PRINT "Press Break or space
 to escape from program"
100 PRINT "Press any key to NE
W"
110 PRINT "Then type RAND USR
 65120"
120 PAUSE 0: PAUSE 0
130 NEW
200 PRINT "Press key for Break
 key (space = normal Break ke
 y)"
210 LET n=CODE INKEY$
220 IF n=0 THEN GOTO 210
230 RETURN
9998 STOP
9999 SAVE CHR$ 22+CHR$ 1+CHR$
 0+"Break"+CHR$ 6 LINE 4
```



Become a sysop with Communitel

David Wallin looks at Communitel, another Bulletin Board software package, for would-be BB operators

A few weeks back we dealt with FBBS budget Bulletin Board software for prospective sysops This week I'll be giving you information about the Communitel system, which is Bulletin Board software and a whole lot more as well

The Communitel package was designed for a specific purpose when it was first written to enable the 200 or so Itecs (Information Technology Exchange Centres) in the country to communicate with each other

Now it is available for any BBC B owner to set up their own Bulletin Board

There are three versions of the software available The one I will be describing is level two' which is the most comprehensive (and expensive) of the packages Levels one and one-plus of the software are for off-line use (no modem-to-modem link) Prepare yourself for a shock the price is £375!!

Before you decide that it's far too expensive bear in mind that the price includes an excellent modem, manufactured by Dacum and intelligent' that is it has built in firmware and a cpu It has autodial auto answer 1200/75 75/1200 and 300/300 baud rates, and connect/disconnect protocols

The modem is totally software controlled so has no knobs or buttons to be fiddled with This is the main part of your £375 I would assess the modem as being worth £220-£280, that s the price of most intelligent modems with similar features (eg the Tandata Tm512 at £255) So the software is not so expensive as it would first appear

Another consideration is that similar systems such as Metrotel, running on a Torch cost four figure sums (Metrotel retails at about £1700)

The software

So what does the other £120 odd buy? The Communitel software is a really easy to use, high quality software package It has a very comprehensive manual, plenty of illustrations and it's written in plain English rather than jargon

The software can be configured to your specific terminal settings, printer codes and disc size etc so that you can get the most from it and your hardware On a 100K disc you can store 95 frames and a 200K disc can store 195 frames Prestel has some 300,000 frames, so your system won't really compete with it, but 195 frames will keep your spare time to a minimal amount. BBC owners will know that you can store 31 files on a disc side, but don t worry, the software sorts all this out and stores everything in one massive file

The software is not only for setting up a Bulletin Board but for accessing it as well (Screens from other Communitel boards may be received at 1200 baud)

The features

Using the software is simple, an auto-boot runs the program and you are presented with a menu which gives these features

Search local viewdata base
Hey Presto viewdata editor
Carousel automatic display
Print Viewdata frames
Local telesoftware formatter
On-line host system
Viewdata/telesoftware terminal (for logging on to other boards)
Create a new viewdata base file (to set up a new board)
Change system settings (for re-defining your terminal)
Exit the viewdata system (to exit the software)

● *Search local viewdata base* – having set up a Bulletin Board it will need rigorous testing This feature lets you play around with the board just as if you had logged on, but you don't move from your computer Your keyboard acts as the remote terminal The usual *#, *{number}#, etc, are all fully implemented

● *Hey Presto Viewdata Editor* – this is the screen editor for creating your frames It is said to be by far the best ever on the standard BBC

It has all the features of the editing computers used by Prestel and is said to be better in some ways It can handle all types of viewdata graphics colours double height etc Text and graphics are available simultaneously

● *Print Viewdata Frames* – this feature is for printing of the screens you have created or screens you have loaded down from another board Screens may be dumped to any of a long list of printers using most of the popular dumping Roms

Either one screen may be dumped or a list may be set up and each will be dumped in turn

● *Local Telesoftware Formatter* – this is a powerful utility for converting a BBC program data or text file into CET standard telesoftware

To be downloadable, on a viewdata board, telesoftware must be in CET standard form (CET – the Council for Educational Technology)

● *Carousel Automatic Display* – this section lets you set up an electronic slide show of frames. That means that you can define a series of frames in a list and each one will be displayed in turn after a specific time delay has been reached This is an off-line section only which means that there is no modem link involved This is like the systems used at many travel agents, tourist information centres, exhibitions, shows and displays

● *On-Line Host* – this is the magic part that puts you on-line The board which you have set up and tested on the *search local viewdata base* feature will be running and await a caller It will answer the phone and send you frames in the order you specified

The structure

The frames are set up in a tree structure with frames branching out from each other You must set up a main menu hello frame and log off frame Messages may be left on the system and are usually left at page 910

Included are three example databases for messing about with to get used to the software

So if you want to start a Viewdata board and you ve got about £400 just lying about, then this is ideal In the future I hope to look at the Linemaster Rom for the BBC which is only £10, but it also lets you start a Viewdata board

More information or indeed, the software itself is available from Communitel Ltd, 189 Preston Road London W10 6TH (01-960 7996)

If you have any queries, tips or comments to make about any aspect of micro communications, David Wallin would love to hear from you

Write to him at *Popular Computing Weekly* 12-13 Little Newport Street, London WC2H 7PP

Machine Incompatibility

Philip Lock, of Leamington Spa Warks writes

Q **A friend of mine gave me a tape with five games for the Amstrad. I was wondering if it is possible to run the games through my Spectrum 48K and if there is any listing available to allow me to load the tape.**

A Mmm tricky, but the simple answer is, you can't. The problem is for a start, the two tape loading systems are incompatible as are the machines. The architecture (the way the memory is set out) is radically different on the two machines so that programs for the Amstrad would not run on the Spectrum and vice versa. However it is just possible that you could rearrange the Spectrum's tape loading system so that it would read the tape. But even if you did, it would be a complete waste of time.

Sprite wrap

Mrs Lin Wyte, of Hounslow, Middlesex, writes

Q **I have just got my hands on a Commodore 64 computer and find that I am very interested in sprites and user defined graphics. I have managed to make up a few routines for both, using *Flip, Turn, Inverse,* and *Roll* (with wrap around) moving up and down.**

What I cannot do is make them wrap around from right to left or vice versa.

A I presume you mean that you are writing a designer program for the sprites and UDGs and that while designing them you want to *Roll* from right to left with wrap.

This is fairly easily done if you take into account that the definitions (for UDGs to start with) are held in the computer as 8 bit bytes. Consider one line for instance is 50. In binary this is 00110010, and to shift it left or right simply multiply, or divide by two respectively. So left would be 100 (decimal) or 01100100 (binary) and right 25 (00011001). To wrap around to the right, check whether the result of the division is a whole number or not. If not, then add 128 to the result, ie, place the bit shifted out of the right hand side into the left hand side.

For left shift, check whether the result of the multiplication is greater than 255, if so add one and *And* with 255. So the following program that will scroll all 8 lines of a UDG left or right

```
10 FOR T=0 TO 7
20 READ A
30 POKE 12288+T,A
40 NEXT
50 POKE 53272,28
60 PRINT [illegible]
70 GET A$
80 IF A$=   THEN GOSUB 200
90 IF A$=   THEN GOSUB 400
100 IF A$<>   THEN 70
110 POKE 53272,21
120 END
200 FOR T=0 TO 7
210 A=PEEK(12288+T)
220 A=A/2
230 IF A<>INT(A) THEN A=A+128
240 POKE 12288+T,INT(A)
220 NEXT
250 RETURN
400 FOR T=0 TO 7
410 A=PEEK(12288+T)
420 A=A*2
450 IF A>255 THEN A=A+1:A=A AND 255
450 POKE 12288+T,A
460 NEXT
480 RETURN
```

Polyphonic problem

Paul Holdaway, of Stockport, writes

Q **I have had some difficulty when trying to write simple music on the Amstrad. When I type in two music lines which are the same note, but not necessarily the same value, and then *Run* the program, the computer plays the notes as if they were only one. So, instead of a slight break in between the two notes, they are played as a continuous tone. How can you help me get around this, in the most simple way?**

A Try this

```
10 FOR T=0 TO 100
20 SOUND 1,200,40,7
30 SOUND 2,200,10,7
40 NEXT
```

What this does is fill up places in the sound queue until there are none left and hence play both notes simultaneously. What you want to do is to make them play separately. This can be done by including the following lines

```
25 IF (SQ(1) AND 128)=  THEN 25
35 IF (SQ(2) AND 128)=  THEN 35
```

What these do is check whether the note is currently in use and wait until it is finished. When it has, then the next note can be played. The alternatives to this method are either to use envelopes (a little bit more sophisticated) or use only one channel.

A phased interface

Jonathan Farmer of Edinburgh writes

Q **I'm having problems with my Interface 1 and 48K Spectrum. Although it is properly connected, the computer does not accept valid commands and prints the usual "?". I've tried cleaning the Spectrum edge connector with a pencil erasure and an alcohol based cleaning fluid as the man from Sinclair Research suggested, but neither have worked.**

I have had the problem before but usually it has fixed itself. This time it hasn't. However, if a *Clear* command is entered with a value between approximately 53000 and 58000, then it is possible to *Cat* a cartridge and also enter *Run* after *New* to load the 'run' program I have on most cartridges. But, if *Load, Save* or *Merge* are entered for the microdrive, then the computer loads, saves or merges from tape instead.

Also, although the Alphacom 32 printer and Protek joystick work when plugged into the interface, using the joystick in cursor mode allows all movements except left, but works perfectly in Kempston and interface 2 modes.

Do I have a bad connection between the interface and my Spectrum, or is my interface faulty?

A It looks as though the connection between the interface and the Spectrum is at fault here although it is difficult to be certain.

There are a number of alternatives. The Spectrum or interface may be broken, although if it is the Spectrum it should be obvious, since it is rare that they only go slightly wrong.

If it is the interface then the same may not apply but being able to get a catalogue and load the 'run' program makes it sound all right.

So we come down to the connection between the two. You say that you tried cleaning the edge connector on the Spectrum, it may be worth while trying to clean the connector on the interface 1. Failing this, you may have a broken connection on either device, possibly the Rom select line.

If so, fixing could be difficult depending on how good you are with a soldering iron. The best thing to do in this case is to try getting the system fixed at one of the repair companies that advertise for this kind of work in the back of this magazine. This can be expensive, so it is better to get a quote before they fix it.

If this is nearly the price of a new system you may as well get a new one (I presume that the guarantee has run out). 48K Spectrums do not cost the earth at the moment.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2R 3LD

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New Releases

Pick of the week

Graham Taylor looks through this week's new arrivals

Amstrad

Program *Commando* **Type** Arcade **Machine** Amstrad **Price** £9 95 **Supplier** Elite Anchor House Anchor Road, Aldridge, Walsall WS9 8PW

Program *Early Words* **Type** Educational **Machine** Amstrad **Price** £9 95 **Supplier** Willow Software The Willows Wrington Lane Congresbury BS19 5BQ

Program *Early Maths* **Type** Educational **Machine** Amstrad **Price** £7 95 **Supplier** Willow Software The Willows, Wrington Lane, Congsebury, Bristol BS19 5BQ

Educational software was slow to start on the Amstrad but seems to be growing space Willow Software has recently released two packages for the younger age ranges entitled *Early Maths* and *Early Words*

Early Maths consists of four separate programs covering in all, age ranges from four to eight Titles of the programs are, you'll be surprised to hear *Addition, Subtraction, Multiplication* and *Division*

The tasks involved are fairly simple with basic animated sequences to illustrate the sum being asked For example if the child makes a mistake in the addition program eg, when asked to count the number of figures in two groups, then the figures move individually to enable the correct answer to be discovered

Similarly a wrong answer in the division program produces a cricketer who bats a series of balls into a number of boxes representing the divisor

There are a lot of programs similar to this around but *Early Maths* is quite neatly produced and is among the better offerings

Program *Fourmost Adventures* **Type** Adventure **Machine** Amstrad **Price** £7 95 **Supplier** Global Software PO Box 67, London SW11 1BS

Program *Monopoly* **Type** Amstrad **Machine** Amstrad **Price** £9 95 **Supplier** Virgin Games, 2-4 Vernon Yard, Portobello Road, London W11 2DX

Program *Price of Magik* **Type** Adventure **Machine** Amstrad **Price** £9 95 **Supplier** Level 9 Computing PO Box 39 Weston-Super-Mare Avon BS24 9UR

Program *Shadowfire* **Type** Arcade **Machine** Amstrad **Price** £9 95 **Supplier** Beyond, Wellington House Upper St Martins Lane, London

Program *Tau Ceti* **Type** Arcade **Machine** Amstrad discs **Price** £14 95 **Supplier** CRL CRL House 9 Kings Yard Carpenter s Road London E15 2HD

This special disc version of CRL's most highly rated game is one of the few special versions of a game that actually delivers some really new material

Contrasted with the cassette version of the game the disc edition is much larger has improved graphics and more complete and complex instructions

The game is basically the same defuse a reactor by finding and assembling a series of cooling rods found inside some of the buildings scattered about the desert planet of Tau Ceti

The game is a mixture of smoothly scrolling graphics as you skim over the bleak surface of the planet and interiors when you enter and search around the inside of the various buildings

If you haven t seen the original game and have a disc drive *Tau Ceti* is a must Even if you have the original, it might be worth investing in this beefed-up disc version

ALTER EGO

Program *Alter Ego* **Type** Simulation **Machine** Commodore 64 **Price** £24 99 **Supplier** Activision, 23 Pond Street, London NW3

Alter Ego is strange Partly a game perhaps, partly a simulation perhaps, possibly a lesson in life (well American life anyway) Whatever it is the entire office was hooked You could treat it as an upmarket me-generation parlour game

The idea is simple – you live a complete life During that life there are some experiences you may deliberately seek, eg, deciding to get a job With other experiences the diverse flotsam and jetsam of existence just crops up from time to time How you handle each experience determines both how your personality develops and the more mundane details of living, such as what job you get what material success you have and so on

Presentation is in the form of a family tree of icons each icon indicates a certain kind of subject matter, physical wellbeing family emotional risks As you ascend the tree time passes and the kinds of experiences you have changes It works like this you select an icon and are presented with a situation you then select your response to the situation from a variety of options presented and sometimes your selection may be rejected as being completely out of character

What makes the program so compulsive is the way you may choose to do many things that either would not ordinarily happen to you or which you would ordinarily shy away from These include (parents be warned) a fairly full range of sexual experiences, from Helga the sexual contortionist to starring in porn movies

However, wild immorality has a cost, not least diseases Indeed throughout the program the goody-goody options (no wild sex no drugs, helping friends in need getting a good job) are usually the right ones though occasional debauchery seems to do no harm

The construction of the game is superb the way actions interrelate and the range of experiences available are astounding (well it is based around three discs of data) as is the way your age governs your responses

It isn t like anything else and is a wonderful game to play as a group (cries of 'Ignore the suicidal friend filled the air) Sex proved to be the experience most often sought Surprise, surprise

I have only two real objections to the game firstly it is a bit, well, American sometimes the right way of handling situations is as sickly sentimental Gee Dad you re the tops , as American sitcoms The other problem is that it is very expensive Nevertheless, there s nothing like it and you will, I predict, be hooked

BBC

Program *Cosmic Battlezones* **Type** Arcade **Machine** BBC **Price** £9 95 **Supplier** US Gold Unit 10, The Parkway Industrial Centre Heneage Street Birmingham B7 4LY

Who d have thought it? Games by Ultimate being bundled together on a compilation and on the BBC as well Still it's happening to everyone and even the best games stop selling at some point There are only three games in the pack but a good mix *Alien 8 Jetpack* and *Lunar Jetman* In many ways all of these games are better than Ultimate s current crop

Lunar Jetman came first and whilst it s blast everything and collect various objects scenario is a little dated now (okay it's very dated indeed) the large sprites still look good and the basic quality of design is still apparent

Lunar Jetman is, to my mind, the most complicated game Ultimate ever released On a craggy moonlike surface you move Jetman and Lunar Rover around seeking out alien missile bases and blasting them to bits The problem is there are jut so many different options Your rover can either carry a bomb or a gun then there are transporters shaped like telephone boxes If that, and dozens of assorted, myriad col oured, aliens isn t enough, there is the problem of the ruts and gulleys in the lunar landscape – every five seconds you get stuck there Graphically excellent virtually unplayable

Finally, *Alien 8*, the follow-up to *Knight Lore* which retained all the key features of that game but added a few others – some cried 'copy' but I never cared the original was so fabulous The game is played in 3D with dozens of strange rooms – the chambers of a spaceship The task of your Disneyesque robot is to reanimate the crew of the ship by placing a key in a lock in each of the cryogenic chambers There are problems in most of the rooms both in getting through them and in getting the required object. Devious, ingenious graphically and technically stunning

A pretty good deal for the money then and worth buying if you ve missed any two of the three games in the pack Sad also since Ultimate hasn t released anything of the calibre of these games in ages

C16

Program *Berks Trilogy* **Type** Arcade **Machine** C16 **Price** £6 95 **Supplier** CRL as above

Commodore 64

Program *Countdown* **Type** Strategy **Machine** Commodore 64 **Price** £8 95 **Supplier** Macsen Software, GBA Cyf 17 Maes Nott Caerfyrddin Dyfed SA31 1PQ

Program *Price of Magik* **Type** Adventure **Machine** Commodore 64 **Price** £9 95 **Supplier** Level 9 Computing as above

Program *Spindizzy* **Type** Arcade **Machine** Commodore 64 **Price** £9 95 **Supplier** Electric Dreams Softwatr 31 Carlton Crescent Southampton, Hampshire SO1 2EW

Program *Vidcom 1* **Type** Utility **Machine** Commodore 64 **Price** £4 95 **Supplier** Alpha Omega 3 Kings Yard, Carpenter s Road London E15 2HD

Program *Bored of the Rings* **Type** Adventure **Machine** Commodore 64 **Price** £8 95 **Supplier** CRL Limited CRL House 3 King Yard Carpenter s Road Stratford, London E15

I don't have the figures but *Bored of the Rings* on the Spectrum must have been at least as successful as *Lord of the Rings* the official version Certainly the former got better reviews

The point about *Bored of the Rings* is that it is genuinely funny only very occasionally lapsing into schoolboy juvenilia Not only is it funny but it has a good many tricky puzzles which test the mettle

Author Fergus McNeill has surely read *Bored of the Rings* the book by National Lampoon since many of the basic ideas are similar, ie that Gandalf is actually a dodgy old conjuror more likely to work the three card trick down Oxford Street than cross magical spells for the sake of good The idea too that Frodo (here Fordo) is actually the only person dumb enough to get stuck with a dead end quest only Rambo would relish is also not entirely original

But never mind, the game is great and now that it's been converted to the Commodore 64, a whole new tribe of less than totally serious adventurers can explore its murky depths

Bored of the Rings is enormous (loaded in three sections) and comes with a wonderful bonus in the form of Sceptical the nature of which I will leave you to discover

MSX

Program *Price of Magik* **Type** Adventure **Machine** MSX **Price** £9 95 **Supplier** Level 9 Computing as above

PCW

Program *Pascal 80* **Type** Utility **Machine** PCW 8256 **Price** £39 95 **Supplier** Hisoft 160 High Street North, Dunstable, Beds LU6 1AT

QL

Program *Ink-Well* **Type** Utility **Machine** QL **Price** £9 95 **Supplier** Palantir Products 80 St Lukes Rd Bedminster, Bristol

Not the first but certainly one of the cheapest, font designer programs for the QL is *Ink Well* a font utility compatible with most QL text editors like the *Quill* and all Epson compatible printers. There are eight fonts supplied on microdrive and the opportunity to construct your own using a font editing program

Fonts need not be a full 19 pixels high thus you may have text of various sizes and you can also print text with proportional spacing Instructions are issued to the program via control codes inserted in your document – all *Ink Well* instructions use the curly brackets which may not otherwise be used hardly a great loss Inside the brackets are simple instructions on which font to select what sort of line spacing and text spacing You may also indicated sections to be printed inverse or emphasised

Altogether a very powerful program My only quibble is that the supplied fonts don t seem very exciting Some are too similar to one another and others seem downright ugly *Ink-Well* is, in other respects highly recommended

Spectrum

Program *Price of Magik* **Type** Adventure **Machine** Spectrum **Price** £8 95 **Supplier** Level 9 Computing as above

Program *Rock n Wrestle* **Type** Arcade **Machine** Spectrum **Price** £8 95 **Supplier** Melborne House 60 High Street Hampton Wick, Kingston Upon Thames, Surrey KT11 4DB

Program *Spindizzy* **Type** Arcade **Machine** Spectrum **Price** £9 95 **Supplier** Electric Dreams as above

ST

Program *Time Bandit* **Type** Arcade **Machine** ST **Price** £29 95 **Supplier** Microdeal PO Box 68 St Austell Cornwall PL25 4YB

Charts

Top Twenty

1	(–)	Batman *(Spectrum, Amstrad)*	Ocean
2	(–)	Thrust *(C64)*	Firebird
3	(–)	Spindizzy *(Spectrum, C64, Amstrad)*	Electric Dreams
4	(1)	Commando *(Various)*	Elite
5	(11)	Formula One Simulator *(Various)*	Mastertronic
6	(3)	Bomb Jack *(Spectrum, C64)*	Elite
7	(2)	They Sold (2) *(Spectrum, C64 Amstrad)*	Hit Squad
8	(14)	Spellbound *(Spectrum, C64, Amstrad)*	Mastertronic
9	(–)	Kik Start *(Spectrum, C64, C16)*	Mastertronic
10	(8)	Green Beret *(Spectrum, C64)*	Imagine
11	(4)	V *(Spectrum, C64)*	Ocean
12	(–)	International Karate *(Spectrum, C64)*	System 3
13	(10)	Last V8 *(C64, Amstrad, Atari)*	Mastertronic
14	(6)	Superbowl *(Spectrum, C64, MSX)*	Ocean
15	(7)	Way Of The Tiger *(Spectrum, Amstrad, MSX)*	Gremlin
16	(12)	Heavy On the Magik *(Spectrum)*	Gargoyle Games
17	(5)	Comp Hits 10 Vol 2 *(Various)*	Beau Jolly
18	(5)	PSI-5 Trading Company *(Spectrum)*	US Gold
19	(13)	Starstrike 2 *(Spectrum)*	Realtime
20	(15)	One Man And His Droid *(Various)*	Mastertronic

Top Tens

All figures compiled by Gallup/Microscope

Amstrad

1	(–)	Batman	(Ocean)
2	(9)	Get Dexter	(PSS)
3	(1)	Commando	(Elite)
4	(2)	Last V8	(Mastertronic)
5	(6)	Into Oblivion	(Mastertronic)
6	(3)	They Sold (2)	(Hit Squad)
7	(4)	Spindizzy	(Electric Dreams)
8	(8)	Comp Hits 10 (2)	(Beau Jolly)
9	(–)	Tonte Espnl	(Durell)
10	(–)	Zoids	(Martech)

Commodore 64

1	(–)	Thrust	(Firebird)
2	(–)	Spindizzy	(Electric Dreams)
3	(–)	Int Karate	(System 3)
4	(1)	PSI-5 Tiding Company	(Us Gold)
5	(3)	Bomb Jack	(Elite)
6	(8)	Spellbound	(Mastertronic)
7	(2)	They Sold (2)	(Hit Squad)
8	(–)	F1 Simulator	(Mastertronic)
9	(6)	V	(Ocean)
10	(6)	Kane	(Mastertronic)

Atari

1	(1)	Last V8	(Mastertronic)
2	(–)	Vegas Jackpot	(Mastertronic)
3	(8)	Scooter	(Americana)
4	(2)	One Man & his Droid	(Mirrosoic)
5	(3)	Action Biker	(Mastertronic)
6	(6)	Office Follies	(Americana)
7	(5)	New York City	(Americana)
8	(5)	Shamus	(Americana)
9	(–)	Shoot Em Up	(Budgie)
10	(10)	Fighter Pilot	(Digital Integration)

BBC

1	(1)	Commando	(Elite)
2	(–)	Bruce Lee	(US Gold)
3	(2)	Winter Olympics	(Tynesoft)
4	(9)	Moon Cresta	(Incentive)
5	(7)	Phantom Combat	(Doctor Soft)
6	(3)	Karate Combat	(Superior)
7	(8)	Citadel	(Superior)
8	(–)	Strike Force Harrier	(Mirrorsoft)
9	(10)	Yie Ar Kung Fu	(Imagine)
10	(6)	Speech	(Superior)

Spectrum

1	(–)	Batman	(Ocean)
2	(1)	Green Beret	(Imagine)
3	(6)	Hvy On The Magik	(Gargoyle)
4	(2)	Starstrike 2	(Realtime)
5	(–)	Quazatron	(Hewson)
6	(–)	Cyberun	(Ultimate)
7	(5)	Bomb Jack	(Elite)
8	(7)	Way Of The Tiger	(Gremlin)
9	(3)	V	(Ocean)
10	(4)	Superbowl	(Ocean)

NEXT WEEK

SPECIAL SUPPLEMENT

It's supplement time at *Popular Computing Weekly* next week, and this time we have a bumper pull-out on the Sinclair Spectrum

● Microfair report

All the fun of the 19th ZX Microfair held on May 10

● Word-processing

The Last Word, from Saga Systems lines up against the mighty *Tasword 3* Which is the best buy?

● Exclusive reviews

Includes The Edge's latest, Bobby Bearing

● Spectrum 128 round-up

Confused by all the reports of 'non-compatibility' and 'enhanced versions'. We clear the air with a survey of all the 128 – specific titles

All you need to know about your Spectrum in *Popular* next week – order your copy now.

The Hackers

Dr. Nibbins, our head of research, is working on several brilliant projects

You MUST meet him. Oh Alastair! - I've...

What the blazes do YOU want Binks!?

By the way, I wouldn't mention the ink-jet printer if I were you.

AAARGH!


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